MINI SYSTEM FW80

/22/25/30/35

Service
Service
Service

Service Manual

The system FW80 consist of:

Digital mini Tuner	70FT080
Amplifier	70FA080
Mini-Double Deck	70FC080
CD Player	CD 080
L.S Box left	FB 80
L.S Box Richt	FB 80
Remote control	RH6622

Published by Consumer Electronics Printed in The Netherlands ©Copyright reserved Subject to modification

4822 725 23915

PHILIPS

S 57 652

GB	Each version of FW80 system consists of following parts:
NL	Het systeem FW80 bestaat,voor elke versie,uit de volgende componenten:
F	Le systéme FW80 comporte les composants suivants selon la version:
D	Das FW80 System baut sich aus für jede Ausführung folgenden Bauteilen auf:
I	Il sistema FW80 consiste dei componenti di cui sotto a secondo della versione:

For repair information of the set use the next service manuals:

Digital Tuner : Use service manuel **Tuner 70FT080** codnr.4822 725 23746
Amplifier : Use service manuel **Ampifier 70FA080** codnr.4822 725 23912
Mini-Double Deck: use service manuel **Cass.Deck 70FC080** codnr.4822 725 23744
CD Player : Use service manuel **Compact Disk Player CD070-080** codnr.4822 725 24012
L.S.Box : Use service manuel **HiFi Loudspeakerbox - Programme 70FB60 70FB70 70FB80** codnr.4822 725 24096

The version FW80/22 consist of:
70FT080/02
70FA080/00U
70FC080/00
CD 080/00B
FB80/00 Left
FB80/00 Right

Remote control RH6622/01 codnr.4822 218 10467
I.F.U FW80 codnr.4822 736 21427
FM Dipole antenne codnr.4822 303 50032
Cord set codnr.4822 321 10249
AM Frame aerial codnr.4822 158 60622
Lead assy codnr.4822 158 60624

The version FW80/25 consist of:
70FT080/00
70FA080/05U
70FC080/00
CD 080/00B
FB80/00 Left
FB80/00 Right

Remote control RH6622/01 codnr.4822 218 10467
I.F.U FW80 codnr.4822 736 21427
FM Dipole antenne codnr.4822 303 50032
Cord set/25 codnr.4822 321 10635
AM Frame aerial codnr.4822 158 60622
Lead assy codnr.4822 158 60624
UHF socket /25 codnr.4822 267 10274

The version FW80/30 consist of:
70FT080/10
70FA080/05U
70FC080/00
CD 080/00B
FB80/00 Left
FB80/00 Right

Remote control RH6622/01 codnr.4822 218 10467
I.F.U FW80 codnr.4822 736 21427
FM Dipole antenne codnr.4822 303 50032
Cord set/30 codnr.4822 321 10523
AM Frame aerial codnr.4822 158 60622
Lead assy codnr.4822 158 60624

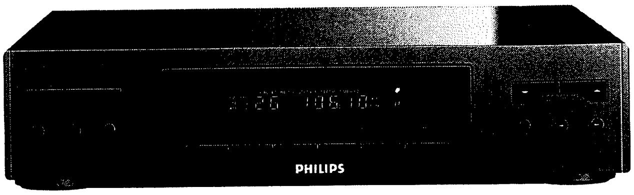
The version FW80/37 consist of:
70FT080/17
70FA080/17U
70FC080/17
CD 080/00B
FB80/00 Left
FB80/00 Right

Remote control RH6622/01 codnr.4822 218 10467
I.F.U FW80 codnr.4822 736 21427
FM Dipole antenne codnr.4822 303 50032
Cord set/37 codnr.4822 321 10788
AM Frame aerial codnr.4822 158 60622
Lead assy codnr.4822 158 60624
F Adapter 02K0244 /17 codnr.4822 263 21047

Mini System **Tuner 70FT080**

/00/01/02/08/10/17

Service
Service
Service



Service Manual

TABLE OF CONTENTS: **page**

Specification 2
Connections & Controls 3–4
Safety & Warnings 5
Service Test Program 6–8

Wiring diagram 9–11

Tuner : Schematic diagram 12–14
Assembly drawing 15–16
Adjustment table 17–18
Control : Schematic diagram 19–20
Assembly drawing 21–22

Exploded view 23–24
Mechanical partslist 24
Electrical partslist 25–27

Published by Consumer Electronics Printed in The Netherlands Copyright reserved Subject to modification

GB 4822 725 23746

PHILIPS

CS 48 552

SPECIFICATION

POWER SUPPLY (via amplifier FA080) : 14V ±1,5V DC stabilized (supply for tuner board)
16 – 36V (supply for control board)
–32V stabilized ($-V_{KK}$ grid voltage)
–26V stabilized } filament FTD
4,9V ±20% AC referring to –26V } filament FTD
3 x R6 backup batteries

CLOCK

Accuracy : typ. 2s/day limit 4s/day
Alarm : buzzer or selected source
Repeat Alarm : 10 min. (only via remote control and buzzer selected)
Timer functions : Two separate timers
Mains break down : no limit because of buffer batteries
Sleep : 60, 30, 10 minutes (to be selected via remote control)

TUNER

Digital PLL stereo tuner with 30 presets, AUTOPROGRAM and Station Name Display.

FM

Aerial input : 75Ω coaxial

Wave range : 87,5 – 108MHz
65,81 – 74MHz plus 87,5 – 108MHz switchable for East European version /14
76 – 90MHz for Japanese version /06

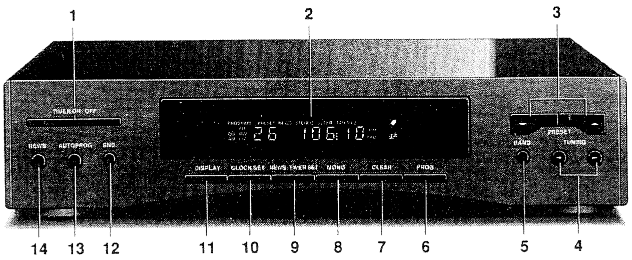
Grid : 50kHz
IF : 10,7MHz ±25kHz
Sensitivity S/N=26dB : 1,2μV mono
S/N=46dB : 45μV stereo
Distortion : 0,6% typ.
Channel separation : 30dB typ.
LF output voltage : 350 – 450mV (1mV, Δf=75kHz)

AM

Aerial input : clickfit socket for frame aerial

		MW	**LW**
Wave range	:	522 – 1611kHz	153 – 279kHz
for USA /17 and Overseas /01		530 – 1710kHz	——
Grid	:	9kHz, 10kHz for USA /17, switchable for /01	3kHz
IF	:	450 ±1kHz	450 ±1kHz
Sensitivity S/N=26dB	:	3mV/m	6mV/m

Distortion : 2% typ.
LF output voltage : ≥40mV (15mV/m, m=30%)



FRONT OF TUNER

1 **TIMER ON/OFF** – for (de)activating the timers
2 **Display** – for showing information
3 **▼ PRESET ▲** – for selecting a preset station
4 **◀ TUNING ▶** – for tuning to a desired frequency
5 **BAND** – for selecting FM, MW or LW band (LW not in all versions)
6 **PROG** – for entering the programming mode to change and store preset stations
7 **CLEAR** – for erasing station names, preset numbers and equalizer/tuner preset combinations
8 **MONO** – for switching between mono and stereo
9 **NEWS/TIMER SET**– for entering the timer and news programming mode to change and store the news and timer settings
10 **CLOCK SET**– for setting date and time of the clock
11 **DISPLAY** – for switching the tuner display between clock, frequency and station name mode
12 **SND** – for assigning a station name and a desired equalizer setting to a preset station
13 **AUTOPROG** – for activating the automatic programming of preset stations
14 **NEWS** – for (de)activating the news timer

TUNING GRID

In North and South America the frequency step between adjacent channels in the AM band must be 10 kHz. In all other parts of the world this step is 9 kHz. In the /01 version of this unit the frequency step can be changed, if necessary.

To change to 9 kHz:

- Switch off the POWER
- Keep BAND **5** and TUNING ◀ pressed down and switch on the POWER again.
- Release the BAND and TUNING keys.
- The display shows for 2 seconds: AM 9 KC

To change to 10 kHz:

- Switch off the POWER
- Keep BAND **5** and TUNING ▶ pressed down and switch on the POWER again.
- Release the BAND and TUNING keys.
- The display shows for 2 seconds: AM 10 KC

Usually the frequency step has been preset in the factory for correct operation in your area.

SWITCHABLE LW WAVEBAND

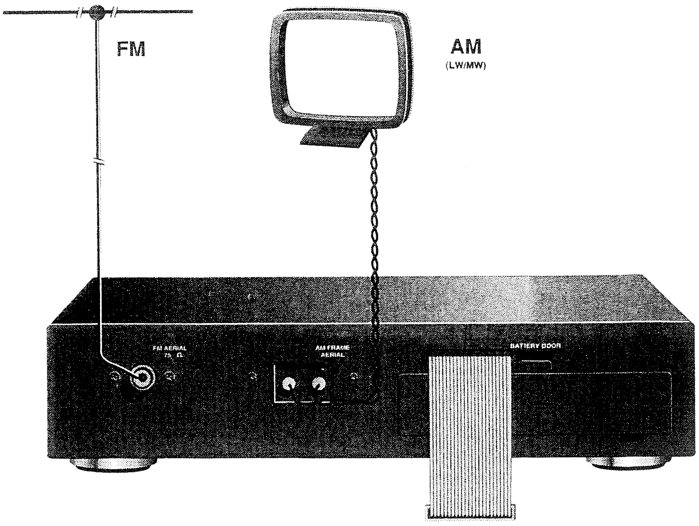
In some countries (Australia, New Zealand, etc.) the LW Waveband does not exist. In the /00 version of this unit it is possible to delete the LW waveband from the BAND menu.

To delete the LW waveband:

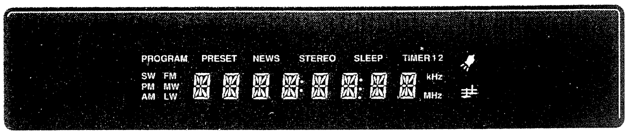
- Switch off the POWER
- Keep BAND **5** and TUNING ▶ pressed down and switch on the POWER again.
- Release the BAND and TUNING keys.
- The display shows for 2 seconds: LW OFF

To include the LW waveband:

- Switch off the POWER
- Keep BAND 5 and TUNING ◀ pressed down and switch on the POWER again.
- Release the BAND and TUNING keys.
- The display shows for 2 seconds: LW ON



DISPLAY



- **PROGRAM** - Flashes when you are in the programming mode to programme a preset station.
- **PRESET** - Lights up when a preset station is selected.
- **NEWS** - Lights up when the news timer is activated
- **STEREO** - Lights up when you are receiving a FM stereo transmitter. If you press MONO **8** while receiving a mono transmitter, STEREO lights up for 2 seconds.
- **SLEEP** - Lights up when the sleep timer is activated.
- **TIMER (1, 2)** lights up to indicate which timer is activated.
- **PM, AM** - to indicate part of the day for the 12-hour clock
- **FM, MW, LW** - to indicate the selected band
- **TEXT DISPLAY** - to show messages, day and time, frequency (and presetnumber) or station name
- **MHz, kHz** - to indicate wether the frequency is given in **MHz** (FM band) or **kHz** (for MW and LW)
- **SYMBOLS** - The bell symbol lights up if the buzzer is selected for an active timer and the music note symbol lights up if a music source is selected for an active timer.

SLEEP (remote control only)

The sleep function is a countdown timer for switching the whole system into standby mode after a specified time.
It enables you to listen to your system prior to falling asleep.
The sleep timer can be set to 60, 30 or 10 minutes.

- Press SLEEP on the remote control to activate the sleep function.
  The display shows SLEEP, followed by 60 MIN.
- Press SLEEP again until the desired sleep time or OFF (to switch the sleep timer off) appears on the display.
  If SLEEP is not pressed for 10 seconds the sleep timer will be set and start counting down to zero. The display will switch back to the previous display mode but the display will contain a indication that the sleep function is activated.

Note:

– The sleep function is cancelled when the system is switched to the standby mode via the STANDBY key on the remote control.

CLOCK

The clock function contains two items: day of the week and the time. It can be set to a 12-hour or 24-hour clock. When the system is in standby mode, day and time are always displayed, but the brightness of the display is low.

- Press CLOCK SET **10** to enter the clock setting mode. The display shows the name of a day abbreviated to 3 letters, e.g. SUN.
- Press PRESET ▲ ▼ **3** until the correct day appears on the display.
- Press CLOCK SET **10** to store the correct day. The display shows CLOCK followed by 12 HOUR or 24 HOUR.
- Press PRESET ▲ ▼ **3** to select the 12-hour or 24-hour clock.
- Press CLOCK SET **10**. Now the display shows either --:-- (24-hour clock) or *AM --:--/PM* --:-- (12-hour clock).
- Press TUNING ◀ or ▶ **4** to select the digit to be changed or AM/PM and press PRESET ▲ ▼ **3** to change the selected digit or AM/PM.
- Press CLOCK SET **10** to store the changes and leave the clock setting mode. The seconds are set to zero and the clock starts running.

Notes:

- It is also possible to use the NEXT/PREVIOUS and ◀◀ / ▶▶ keys on the remote control instead of the PRESET 3 and TUNING 4 keys on the tuner.
- The clock can be set when the tuner is in standby mode or active mode.
- For the 12-hour clock: AM 12:00 means midnight and PM 12:00 means noon.
- If a source is selected, BAND **5** is pressed or if no key is pressed in the clock setting mode for 1.5 minutes, the clock setting mode will be left and the last changes (made before leaving this mode) will be stored.

TIMER

You can programme two separate timers. These timers (timer 1 and timer 2) can be set to a time at which several options are possible:

- the tuner wakes up and is tuned to a selected preset station;
- the CD player wakes up and starts playing a selected track;
- the cassette deck wakes up and starts playing;
- the (optional) DCC recorder wakes up and starts playing a selected track;
- the buzzer starts (automatically for 1 minute).

- Press NEWS/TIMER SET **9** to enter the timer setting mode. The display shows SELECT TIMER/NEWS followed by NEWS.
- Press PRESET ▲ ▼ **3** until TIMER 1 or TIMER 2 appears on the display.
- Press NEWS/TIMER SET **9** to confirm the selection of the correct timer. The display shows SELECT SOURCE, followed by the last selected source.
- Press PRESET ▲ ▼ **3** until the desired source or the buzzer appears on the display.
- Press NEWS/TIMER SET **9** to store the selected source or buzzer. If you have selected CD or DCC, the TRACK will be displayed. If you have selected tuner, the PRESET will be displayed. If you have selected buzzer, the display will show the selected wakening days.
- If you have selected CD, DCC or tuner: press PRESET ▲ ▼ **3** until the desired track or preset appears and press NEWS/TIMER SET **9** afterwards to store the track or preset. The display shows the selected wakening days.
- Press PRESET ▲ ▼ **3** to select the wakening days: ONCE, DAILY, WEEKEND (Saturday and Sunday) or WEEKDAY (Monday – Friday).
- Press NEWS/TIMER SET **9** to store the selection. The display shows START TIME,followed by a time.
- Press TUNING ◀ or ▶ **4** to select the digit to be changed and press PRESET ▲ ▼ **3** to change the selected digit.
- Press NEWS/TIMER SET **9** to store the start time. If you selected the buzzer as the source, the timer setting mode is ended, otherwise the display will show STOP TIME, followed by a time.
- Press TUNING ◀ or ▶ **4** to select the digit to be changed and press PRESET ▲ ▼ **3** to change the selected digit.
- Press NEWS/TIMER SET **9** to store the timer settings and leave the timer setting mode.
- Press TIMER ON/OFF **1** (or TIMER on the remote control) until the desired timer combination is displayed. You can choose between: timer 1 activated, timer 2 activated, both timers activated or both timers deactivated. When TIMER ON/OFF **1** (or TIMER on the remote control) is not pressed for 3 seconds, the last displayed timer (combination) is activated. The display shows which timers are activated. If a timer is activated, the display also shows whether a buzzer (the bell symbol) or a sound source (the musical notes) has been selected for the timer.

Notes:

- when the timer is activated from standby, the volume will increase gradually to a fixed level over a 30-second period.
- during dubbing, the timer will not function.
- It is not possible to start recording on the cassette deck or DCC recorder via timers.
- If the set is in the recording mode at the start time of a timer, the timer is deactivated.
- It is also possible to use the NEXT/PREVIOUS and ◀◀ or ▶▶ keys on the remote control instead of the PRESET **3** and TUNING **4** keys on the tuner.
- If a source is selected, BAND **5** is pressed or if no key is pressed in the timer setting mode for 1,5 minutes, the timer setting mode will be left and the last changes (made before leaving this mode) will be stored.
- When a CD player, cassette deck or DCC recorder is selected as the source, the unit must be loaded with a CD or cassette, otherwise the tuner will be selected as the source with the last selected preset station. If there is no cassette in deck B, the cassette deck will play the cassette in deck A.
- Any source selection on the system will deactivate the timer.
- Any playing source will be interrupted at the start time of a timer and will continue after the stop time.
- If the start time and the stop time of a timer are equal, then the timer will be deactivated.
- If the start time of timer 1 is equal to the start time of timer 2 then timer 2 will be cancelled.
- The last start time has a higher priority than an earlier start time.
  Example: If the start time of timer 2 is before the stop time of timer 1, the selected source of timer 1 will go to stop and the selected source of timer 2 will be heard.

REPEAT BUZZER (remote control only)

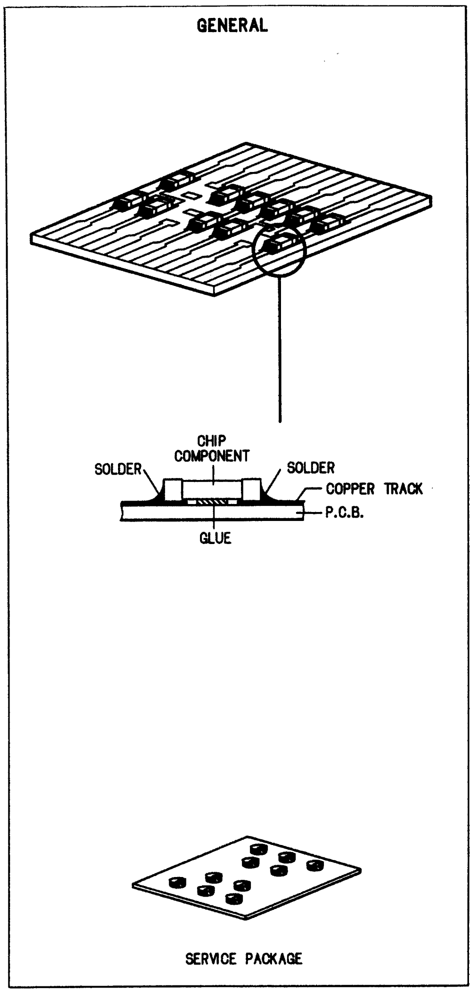
When the buzzer is switched on, it is possible to stop it sounding and delay its restart time for 10 minutes.

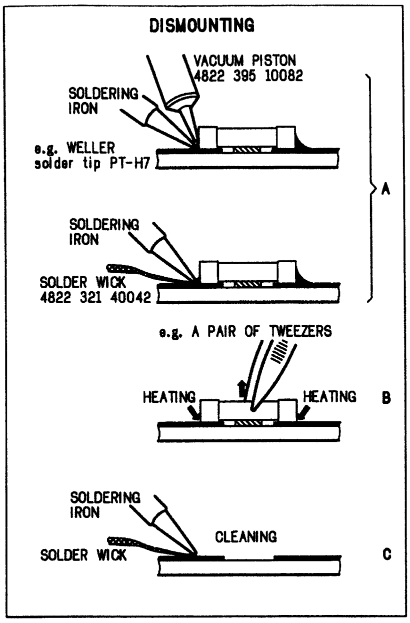
- Press one of the two AUDIO VOLUME keys or one of the two BALANCE keys on the remote control to temporarily switch off the buzzer. After 10 minutes it will start sounding again.
- Press BUZZER OFF on the remote control to permanently switch off the buzzer.

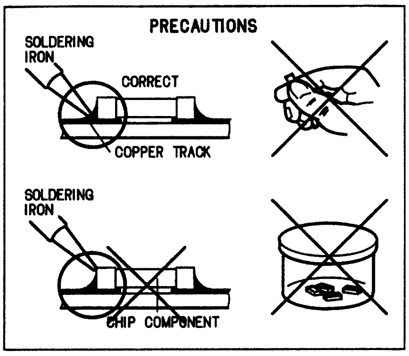
Note:

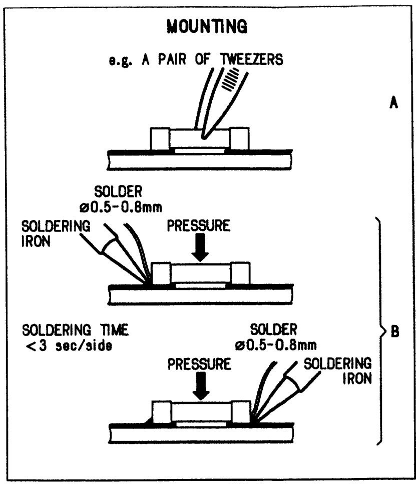
- Pressing any key on the system itself has no effect on the buzzer.

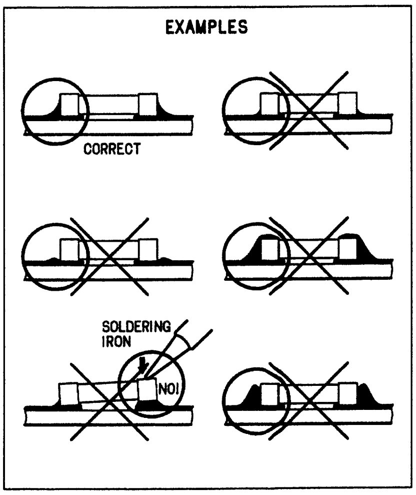
HANDLING CHIP COMPONENTS


GENERAL
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE


DISMOUNTING
VACUUM PISTON
4822 395 10082
SOLDERING IRON
e.g. WELLER
solder tip PT-H7
A
SOLDERING IRON
SOLDER WICK
4822 321 40042
e.g. A PAIR OF TWEEZERS
HEATING
HEATING
B
SOLDERING IRON
CLEANING
SOLDER WICK
C


PRECAUTIONS
SOLDERING IRON
CORRECT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT


MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER
ø0.5-0.8mm
SOLDERING IRON
PRESSURE
SOLDERING TIME
<3 sec/side
SOLDER
ø0.5-0.8mm
B
PRESSURE
SOLDERING IRON


EXAMPLES
CORRECT
SOLDERING IRON
NO!

(GB) WARNING

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools at this potential.

(F) ATTENTION

Tous les IC et beaucoup d´autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévite pourrait être considérablement écourtée par le fait qu´aucune précaution nést prise à leur manipulation.
Lors de réparations, s´assurer de bien être relié au même potentiel que la masse de l´appareil et enfileer le bracelet serti d´une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l´on utilise soient également à ce potentiel.

(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Originalersatzteile zu verwenden.

(F)
"Pour votre sécurite, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne".

ESD

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD). Unsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.
Sorgen Sie dafür, daß sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(I)
Le norme di sicurezza estigono che l´apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.

(F)
Les normes de sécurité exigent que l`appareil soit remis à l`état d`origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

(NL) WAARSCHUWING

Alle IC´s en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparationi occorre quindi essere collegato allo stesso potenziale che quello della massa delápparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

	VERSION					
PRESET	Europe 3-band	East Europe 3-band	USA 2-band	JAPAN 2-band	OVERSEA 2-band	UNIT
1	87,5	87,5	87,5	76	87,5	MHz
2	108	108	108	90	108	MHz
3	98	98	98	76	98	MHz
4	89,7	89,7	89,7	76	89,7	MHz
5	93	93	93	76	93	MHz
6	104,9	104,9	104,9	76	104,9	MHz
7	522	522	530	522	530	kHz
8	1611	1611	1710	1629	1710	kHz
9	540	540	540	540	540	kHz
10	549	549	550	549	550	kHz
11	558	558	560	558	560	kHz
12	1494	1494	1500	1494	1500	kHz
13	153	153	1600	76	1600	kHz/MHz
14	279	279	87,5	76	87,5	kHz/MHz
15	153	153	87,5	76	87,5	kHz/MHz
16	198	198	87,5	76	87,5	kHz/MHz
17	270	270	87,5	76	87,5	kHz/MHz
18	87,5	65,81	87,5	76	87,5	MHz
19	87,5	74	87,5	76	87,5	MHz
20	999	999	1000	999	1000	kHz

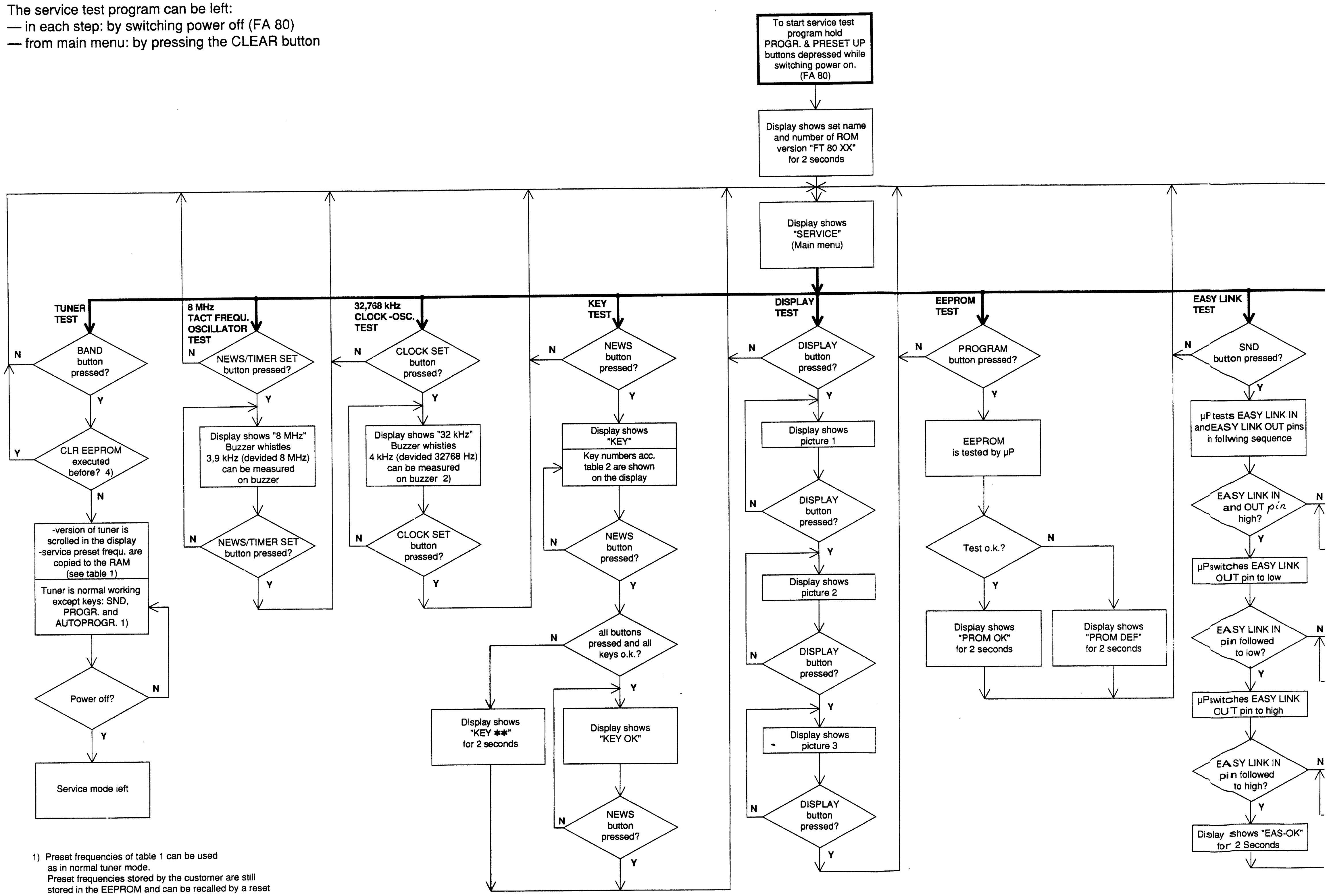
table 1

Key activated	Display shows
Timer on/off	04
Autoprog.	10
SND	0C
Display	07
Clock set	03
News/timer Set	0B
Mono	0F
Clear	0E
Prog.	0A
Preset down	06
Preset up	09
Band	02
Tuning down	01
Tuning up	05

table 2

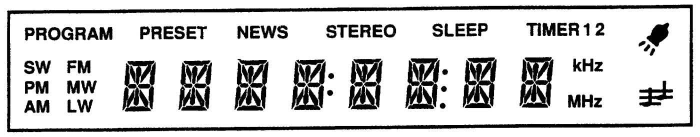
SERVICE TEST PROGRAM

The service test program can be left:
— in each step: by switching power off (FA 80)
— from main menu: by pressing the CLEAR button

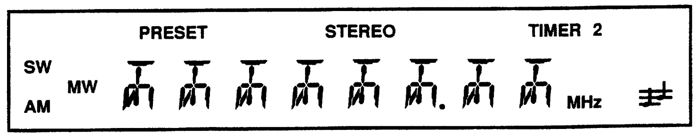

To start service test program hold PROGR. & PRESET UP buttons depressed while switching power on. (FA 80)
Display shows set name and number of ROM version "FT 80 XX" for 2 seconds
Display shows "SERVICE" (Main menu)
TUNER TEST
BAND button pressed?
N
Y
CLR EEPROM executed before? 4)
Y
N
-version of tuner is scrolled in the display -service preset frequ. are copied to the RAM (see table 1)
Tuner is normal working except keys: SND, PROGR. and AUTOPROGR. 1)
Power off?
N
Y
Service mode left
8 MHz TACT FREQU. OSCILLATOR TEST
NEWS/TIMER SET button pressed?
N
Y
Display shows "8 MHz" Buzzer whistles 3,9 kHz (devided 8 MHz) can be measured on buzzer
NEWS/TIMER SET button pressed?
N
Y
32,768 kHz CLOCK -OSC. TEST
CLOCK SET button pressed?
N
Y
Display shows "32 kHz" Buzzer whistles 4 kHz (devided 32768 Hz) can be measured on buzzer 2)
CLOCK SET button pressed?
N
Y
KEY TEST
NEWS button pressed?
N
Y
Display shows "KEY"
Key numbers acc. table 2 are shown on the display
NEWS button pressed?
N
Y
all buttons pressed and all keys o.k.?
N
Y
Display shows "KEY **" for 2 seconds
Display shows "KEY OK"
NEWS button pressed?
N
Y
DISPLAY TEST
DISPLAY button pressed?
N
Y
Display shows picture 1
DISPLAY button pressed?
N
Y
Display shows picture 2
DISPLAY button pressed?
N
Y
Display shows picture 3
DISPLAY button pressed?
N
Y
EEPROM TEST
PROGRAM button pressed?
N
Y
EEPROM is tested by μP
Test o.k.?
N
Y
Display shows "PROM OK" for 2 seconds
Display shows "PROM DEF" for 2 seconds
EASY LINK TEST
SND button pressed?
N
Y
μP tests EASY LINK IN and EASY LINK OUT pins in follwing sequence
EASY LINK IN and OUT pin high?
N
Y
μP switches EASY LINK OUT pin to low
EASY LINK IN pin followed to low?
N
Y
μP switches EASY LINK OUT pin to high
EASY LINK IN pin followed to high?
N
Y
Display shows "EAS-OK" for 2 Seconds

1) Preset frequencies of table 1 can be used as in normal tuner mode. Preset frequencies stored by the customer are still stored in the EEPROM and can be recalled by a reset of the μP (switching power off).

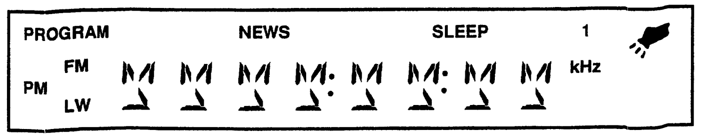
2) Tolerance: 4095,795 — 4096,204 Hz (244,1528 — 244,1284 μs)


PROGRAM
PRESET
NEWS
STEREO
SLEEP
TIMER 1 2
SW FM
PM MW
AM LW
kHz
MHz

picture 1


PRESET
STEREO
TIMER 2
SW
MW
AM
MHz

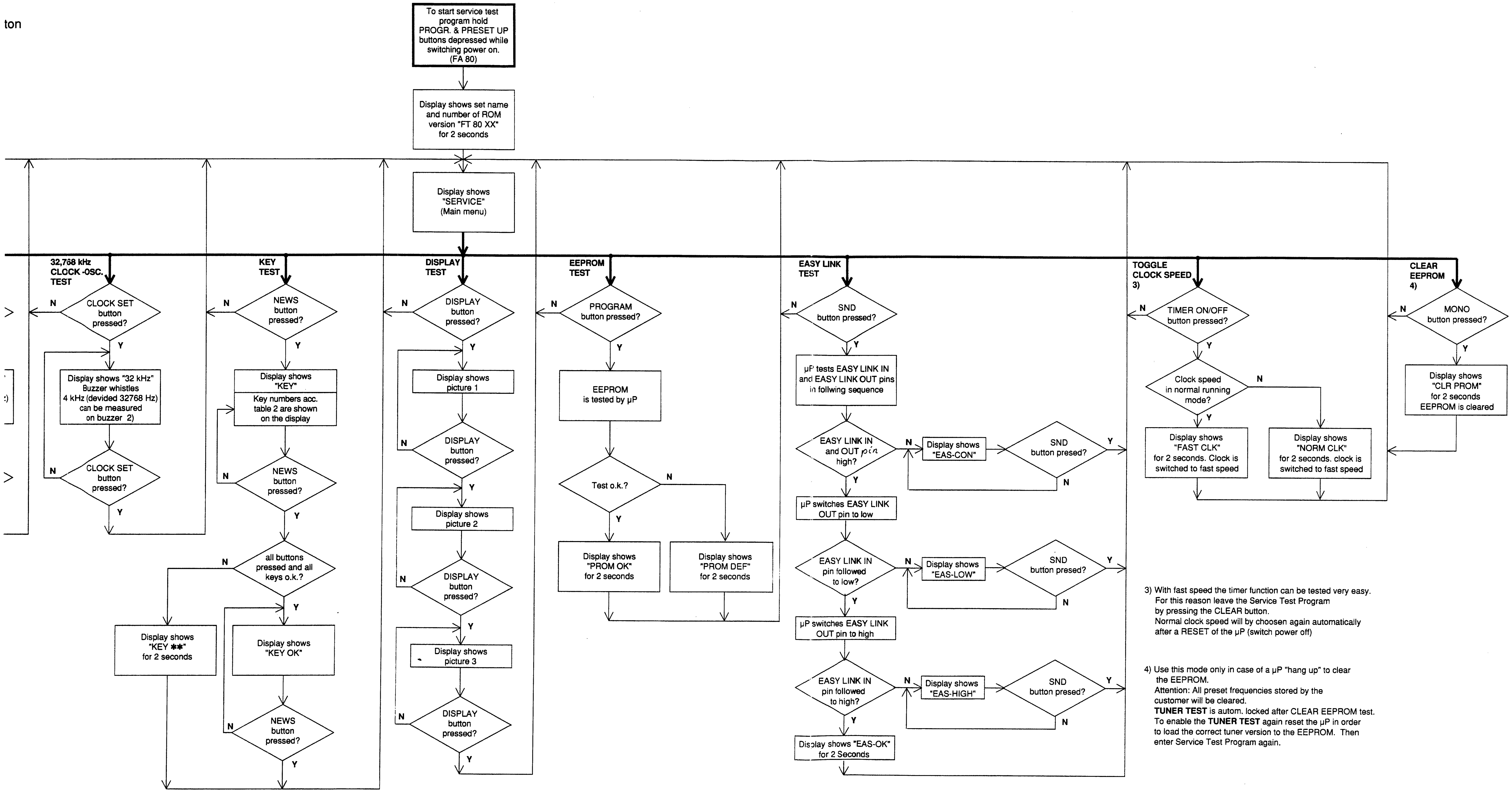
picture 2


PROGRAM
NEWS
SLEEP
1
FM
PM
LW
kHz

picture 3

RAM

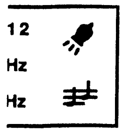
ton

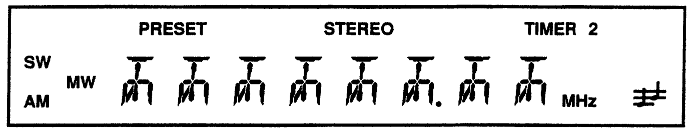


To start service test program hold PROGR. & PRESET UP buttons depressed while switching power on. (FA 80)
Display shows set name and number of ROM version "FT 80 XX" for 2 seconds
Display shows "SERVICE" (Main menu)
32,768 kHz CLOCK-OSC. TEST
CLOCK SET button pressed?
Display shows "32 kHz" Buzzer whistles 4 kHz (devided 32768 Hz) can be measured on buzzer 2)
CLOCK SET button pressed?
KEY TEST
NEWS button pressed?
Display shows "KEY"
Key numbers acc. table 2 are shown on the display
NEWS button pressed?
all buttons pressed and all keys o.k.?
Display shows "KEY **" for 2 seconds
Display shows "KEY OK"
NEWS button pressed?
DISPLAY TEST
DISPLAY button pressed?
Display shows picture 1
DISPLAY button pressed?
Display shows picture 2
DISPLAY button pressed?
Display shows picture 3
DISPLAY button pressed?
EEPROM TEST
PROGRAM button pressed?
EEPROM is tested by µP
Test o.k.?
Display shows "PROM OK" for 2 seconds
Display shows "PROM DEF" for 2 seconds
EASY LINK TEST
SND button pressed?
µP tests EASY LINK IN and EASY LINK OUT pins in follwing sequence
EASY LINK IN and OUT pin high?
Display shows "EAS-CON"
SND button presed?
µP switches EASY LINK OUT pin to low
EASY LINK IN pin followed to low?
Display shows "EAS-LOW"
SND button presed?
µP switches EASY LINK OUT pin to high
EASY LINK IN pin followed to high?
Display shows "EAS-HIGH"
SND button presed?
Display shows "EAS-OK" for 2 Seconds
TOGGLE CLOCK SPEED 3)
TIMER ON/OFF button pressed?
Clock speed in normal running mode?
Display shows "FAST CLK" for 2 seconds. Clock is switched to fast speed
Display shows "NORM CLK" for 2 seconds. clock is switched to fast speed
CLEAR EEPROM 4)
MONO button pressed?
Display shows "CLR PROM" for 2 seconds EEPROM is cleared
Y
N

3) With fast speed the timer function can be tested very easy.
For this reason leave the Service Test Program by pressing the CLEAR button.
Normal clock speed will by choosen again automatically after a RESET of the µP (switch power off)

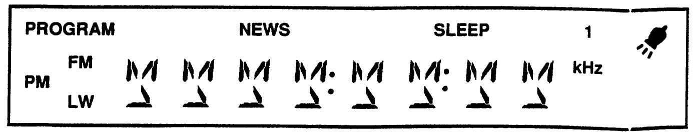
4) Use this mode only in case of a µP "hang up" to clear the EEPROM.
Attention: All preset frequencies stored by the customer will be cleared.
TUNER TEST is autom. locked after CLEAR EEPROM test.
To enable the **TUNER TEST** again reset the µP in order to load the correct tuner version to the EEPROM. Then enter Service Test Program again.





PRESET
STEREO
TIMER 2
SW
MW
AM
MHz

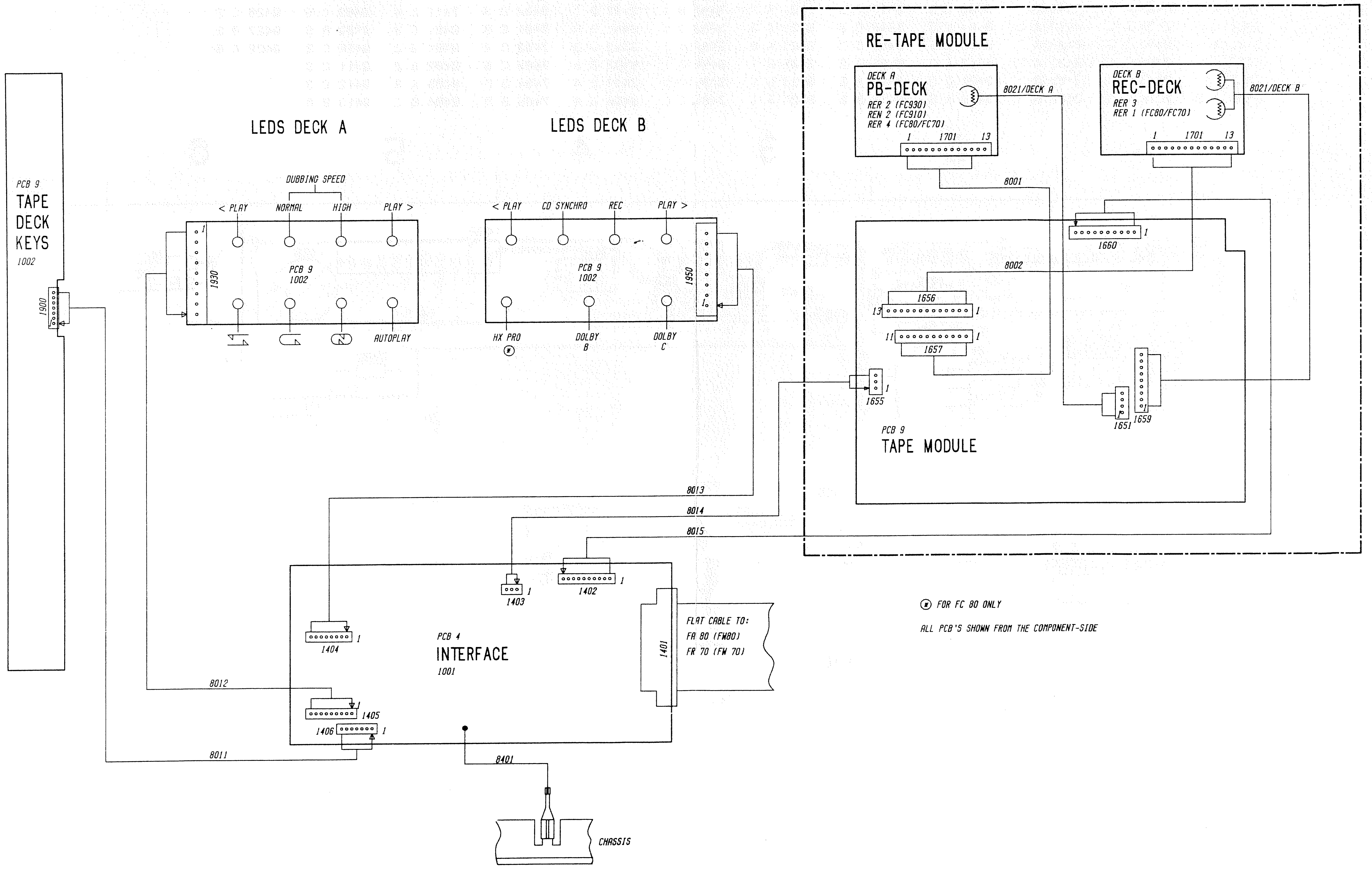
picture 2



PROGRAM
NEWS
SLEEP
1
FM
PM
LW
kHz

picture 3

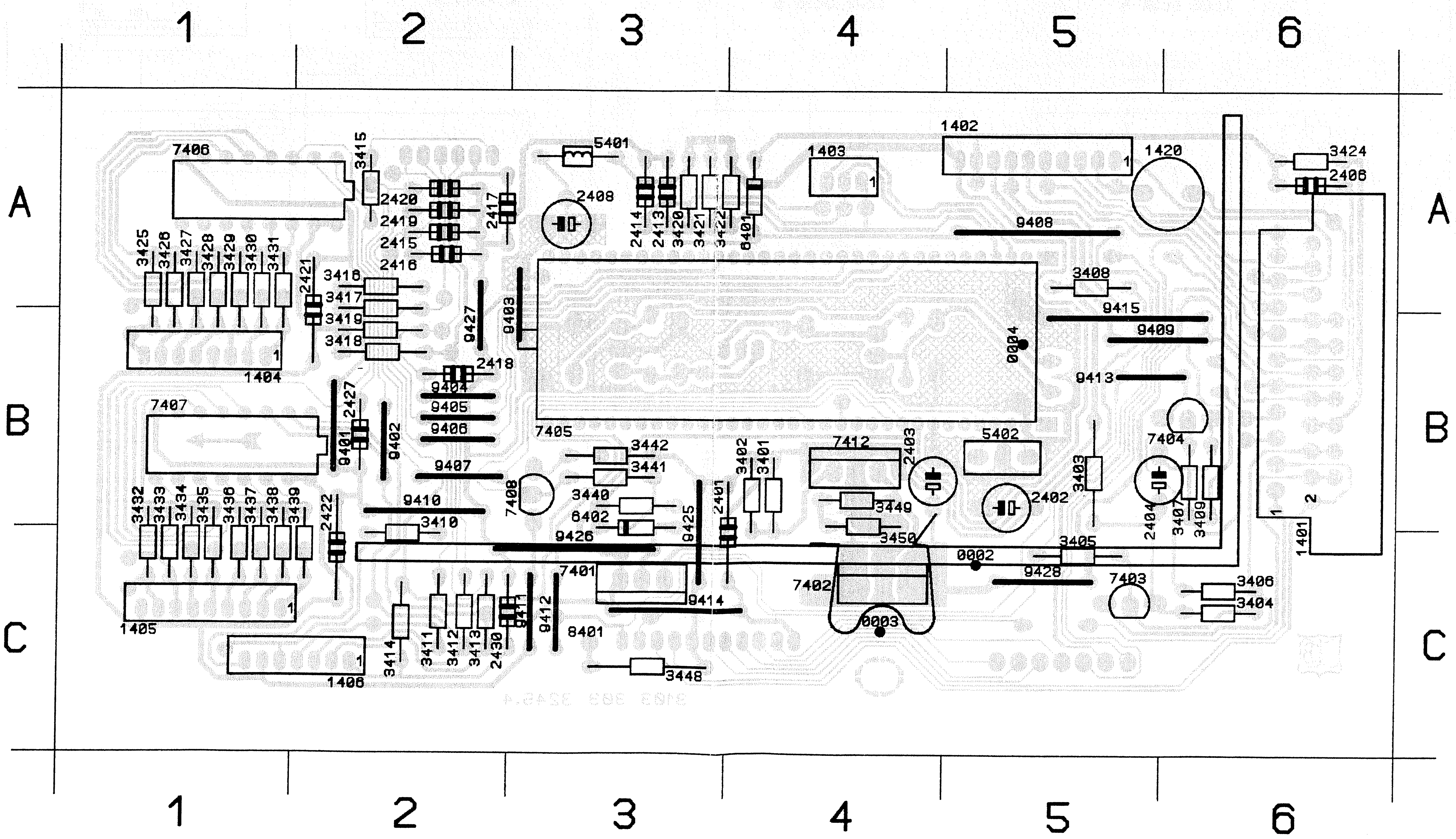
WIRING DIAGRAM


RE-TAPE MODULE
DECK A
PB-DECK
RER 2 (FC930)
REN 2 (FC910)
RER 4 (FC80/FC70)
1
1701
13
8021/DECK A
DECK B
REC-DECK
RER 3
RER 1 (FC80/FC70)
1
1701
13
8021/DECK B
8001
1660
1
8002
1656
13
1
11
1
1657
1655
1
1651
1659
PCB 9
TAPE MODULE
LEDS DECK A
DUBBING SPEED
< PLAY
NORMAL
HIGH
PLAY >
1
1930
PCB 9
1002
AUTOPLAY
LEDS DECK B
< PLAY
CD SYNCHRO
REC
PLAY >
PCB 9
1002
1950
1
HX PRO
DOLBY B
DOLBY C
PCB 9
TAPE DECK KEYS
1002
1900
8013
8014
8015
1403
1
1402
1
1404
1
PCB 4
INTERFACE
1001
1401
FLAT CABLE TO:
FA 80 (FW80)
FR 70 (FW 70)
8012
1405
1
1406
1
8011
8401
CHASSIS

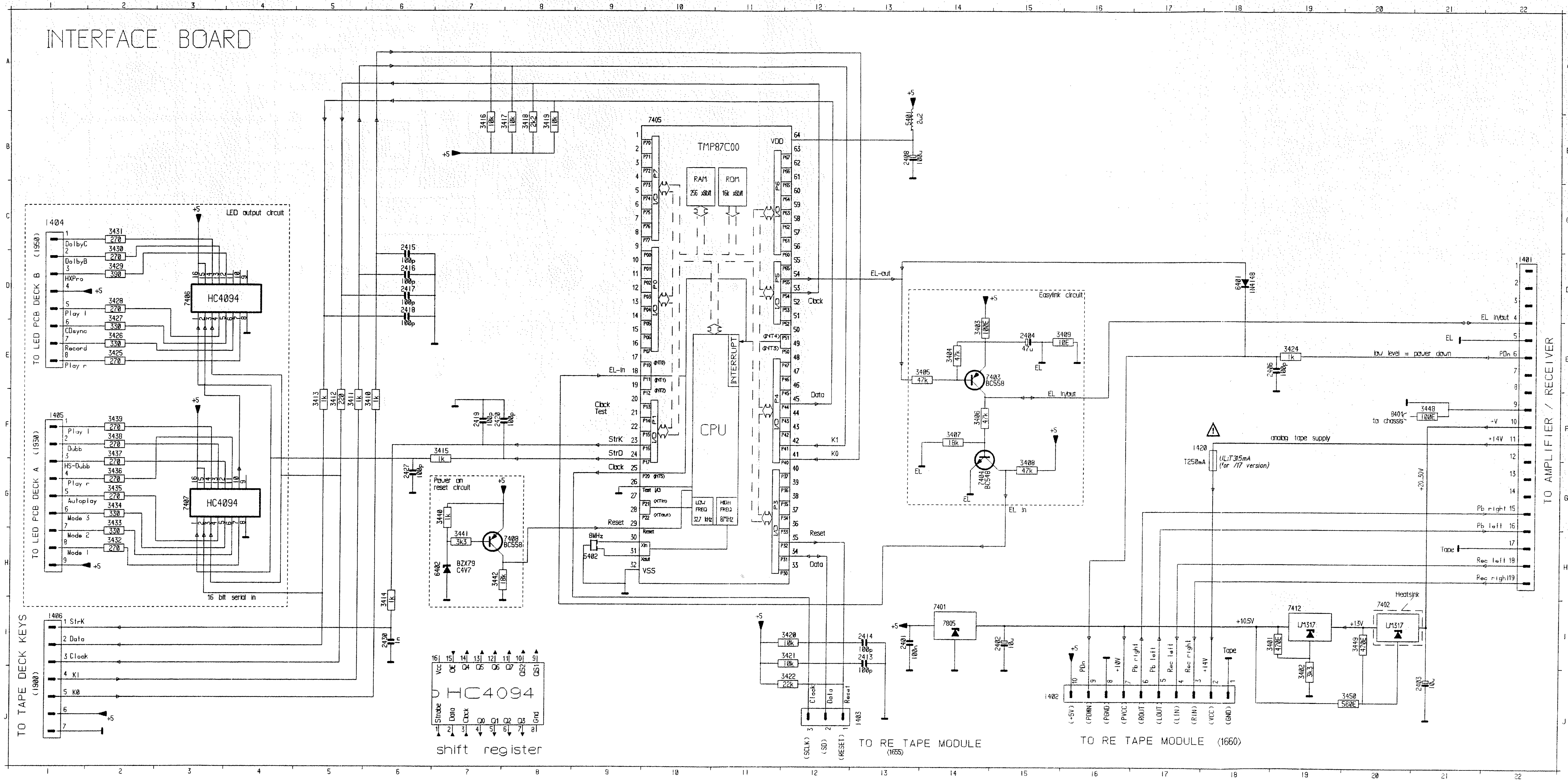
⊛ FOR FC 80 ONLY

ALL PCB'S SHOWN FROM THE COMPONENT-SIDE

0002 C 5	1420 A 5	2415 A 2	2430 C 2	3409 B 6	3418 B 2	3428 B 1	3437 C 1	5401 A 3	7406 A 2	9405 B 2	9414 C 4
0003 C 4	2401 B 3	2416 A 2	3401 C 4	3410 C 2	3419 B 2	3429 B 1	3438 C 1	5402 B 5	7407 B 2	9406 B 2	9415 B 5
0004 B 5	2402 B 5	2417 A 2	3402 B 4	3411 C 2	3420 A 3	3430 B 1	3439 C 2	6401 A 4	7408 B 3	9407 B 2	9425 C 3
1401 B 6	2403 B 4	2418 B 2	3403 C 5	3412 C 2	3421 A 3	3431 B 1	3440 B 3	6402 C 3	7412 B 4	9408 A 5	9426 C 2
1402 A 5	2404 B 5	2419 A 2	3404 C 6	3413 C 2	3422 A 3	3432 C 1	3441 B 3	7401 C 3	8401 C 3	9409 B 5	9427 B 2
1403 A 4	2406 A 6	2420 A 2	3405 C 5	3414 C 2	3424 A 6	3433 C 1	3442 B 3	7402 C 4	9401 B 2	9410 C 2	9428 C 5
1404 B 1	2408 A 3	2421 A 2	3406 C 6	3415 A 2	3425 B 1	3434 C 1	3448 C 3	7403 C 5	9402 B 2	9411 C 3	
1405 C 1	2413 A 3	2422 B 2	3407 C 6	3416 A 2	3426 B 1	3435 C 1	3449 B 4	7404 B 6	9403 A 3	9412 C 3	
1406 C 2	2414 A 3	2427 B 2	3408 A 5	3417 B 2	3427 B 1	3436 C 1	3450 C 4	7405 B 3	9404 B 2	9413 B 6	

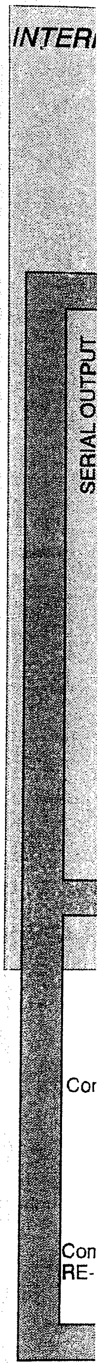

1
2
3
4
5
6
A
B
C
7406
3415
2420
2419
2415
2416
2417
5401
2408
2414
2413
3420
3421
3422
6401
1403
1402
1420
3424
2406
3425
3426
3427
3428
3429
3430
3431
2421
3416
3417
3419
3418
9427
9403
1404
2418
9404
9405
9406
9407
7407
9401
2427
9402
9408
3408
9415
9409
0004
9413
7405
3442
3441
3440
6402
7408
9410
3410
9426
9425
2401
3402
3401
7412
2403
3449
3450
5402
2402
3403
7404
2404
3407
3409
1401
3405
0002
9428
7402
7403
3406
3404
0003
3432
3433
3434
3435
3436
3437
3438
3439
2422
1405
1406
3414
3411
3412
3413
2430
3411
9412
8401
7401
9414
3448

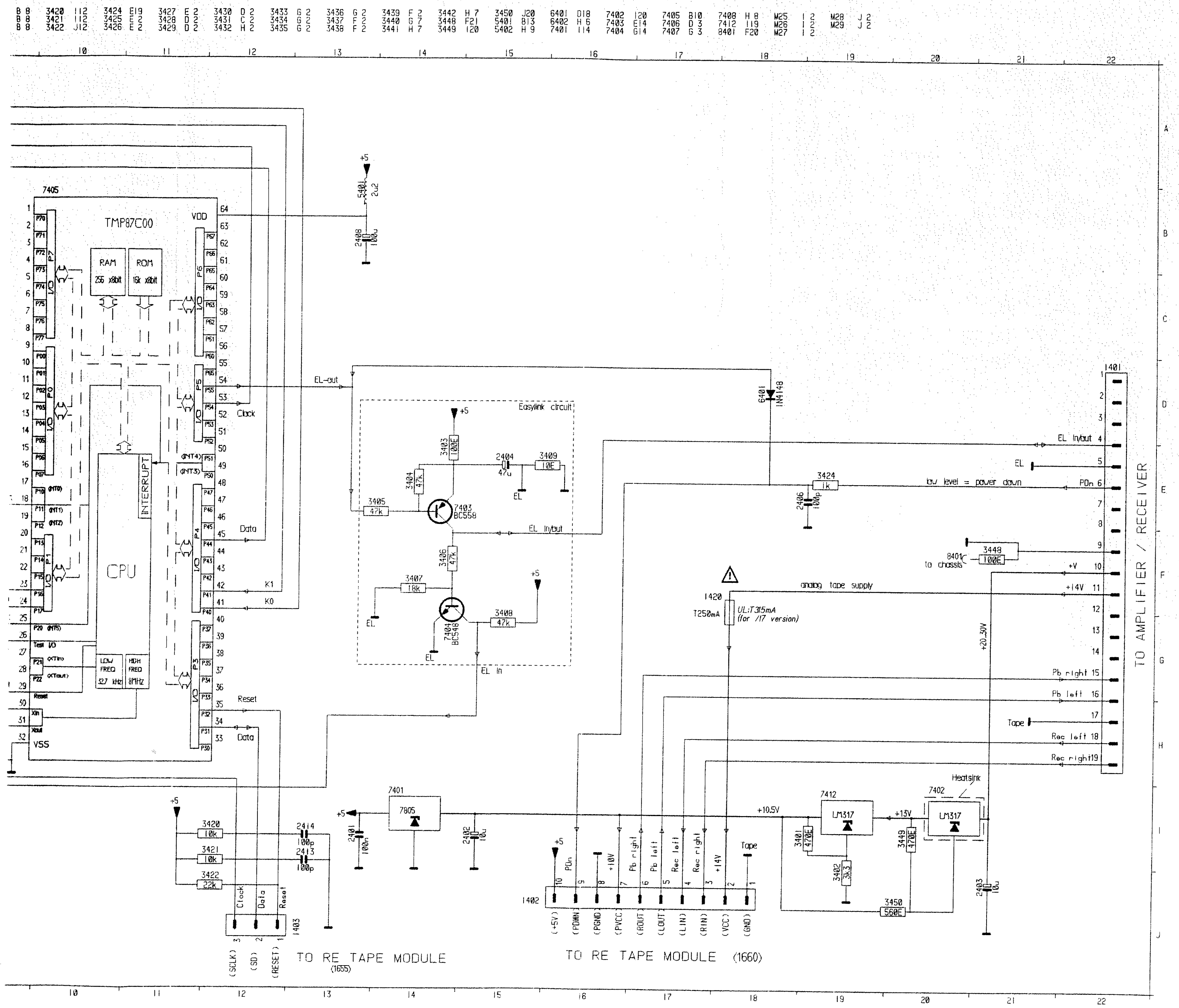
1401	D22
1402	J15
1403	J13
1404	C 1
1405	F 1
1406	I 1
1420	F17
2401	I13
2402	I15
2403	J21
2404	E15
2406	E18
2408	B13
2413	I13
2414	I13
2415	C 6
2416	D 6
2417	D 6
2418	D 6
2419	F 7
2420	F 7
2427	G 6
2430	I 6
3401	I19
3402	J19
3403	E14
3404	E14
3405	E14
3406	F14
3407	F14
3408	G15
3409	E16
3410	F 6
3411	F 5
3412	F 5
3413	F 5
3414	I 6
3415	F 7
3416	B 7
3417	B 8
3418	B 8
3419	B 8
3420	I12
3421	I12
3422	J12
3424	E19
3425	E 2
3426	E 2
3427	E 2
3428	D 2
3429	D 2
3430	D 2
3431	C 2
3432	H 2
3433	G 2
3434	G 2
3435	G 2
3436	G 2
3437	F 2
3438	F 2
3439	F 2
3440	G 7
3441	H 7
3442	H 7
3448	F21
3449	I20
3450	J20
5401	B13
5402	H 9
6401	D18
6402	H 6
7401	I14
7402	I20
7403	E14
7404	G14
7405	B10
7406	D 3
7407	G 3
7408	H 8
7412	I19
8401	F20
M25	I 2
M26	I 2
M27	I 2
M28	J 2
M29	J 2


INTERFACE BOARD
TO LED PCB DECK B (1950)
TO LED PCB DECK A (1930)
TO TAPE DECK KEYS (1900)
LED output circuit
1404
DolbyC
DolbyB
HXPro
Play l
CDsync
Record
Play r
1405
Play l
Dubb
HS-Dubb
Play r
Autoplay
Mode 3
Mode 2
Mode 1
HC4094
7406
7407
16 bit serial in
1406
1 StrK
2 Data
3 Clock
4 K1
5 K0
6
7
7405
TMP87C00
RAM 256 x8bit
ROM 16k x8bit
INTERRUPT
CPU
VDD
VSS
EL-in
Clock Test
StrK
StrD
Clock
Reset
8MHz
5402
LOW FREQ 32 kHz
HIGH FREQ 8MHz
Clock
Data
K1
K0
Reset
Data
EL-out
Power on reset circuit
3440 1k
3441 3k3
7408 BC558
6402 BZX79 C4V7
3442 18k
3415 1k
3414 1k
2430 1n
2427 100p
2419 100p
2420 100p
2415 100p
2416 100p
2417 100p
2418 100p
3413 1k
3412 220
3411 1k
3410 1k
3416 10k
3417 10k
3418 2k2
3419 10k
+5
5401 6u2
2408 100u
shift register
HC4094
Vcc OE Q4 Q5 Q6 Q7 QS2 QS1
Strobe Data Clock Q0 Q1 Q2 Q3 Gnd
3420 10k
3421 10k
3422 22k
2414 100p
2413 100p
1403
Clock Data Reset
(SCLK) (SD) (RESET)
TO RE TAPE MODULE (1655)
Easylink circuit
3403 100E
3404 47k
2404 47u
3409 10E
3405 47k
7403 BC558
EL_in/out
3406 47k
3407 18k
7404 BC548
3408 47k
EL_in
EL
7401
7805
2401 100n
2402 10u
1402
(+5V) (PDWN) (PGND) (PVCC) (ROUT) (LOUT) (LIN) (RIN) (VCC) (GND)
PDn +10V Pb right Pb left Rec left Rec right +14V Tape
TO RE TAPE MODULE (1660)
6401 1N4148
3424 1k
2406 100p
low level = power down
3448 100E
8401 to chassis
analog tape supply
1420 T250mA
UL:T315mA (for /17 version)
+20.5V
+10.5V
7412 LM317
+15V
7402 LM317
Heatsink
3401 470E
3402 3k3
3449 470E
3450 560E
2403 10u
1401
EL in/out 4
5
PDn 6
7
8
9
-V 10
+14V 11
12
13
14
Pb right 15
Pb left 16
Tape 17
Rec left 18
Rec right 19
TO AMPLIFIER / RECEIVER

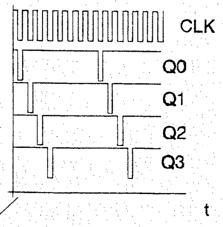
nul

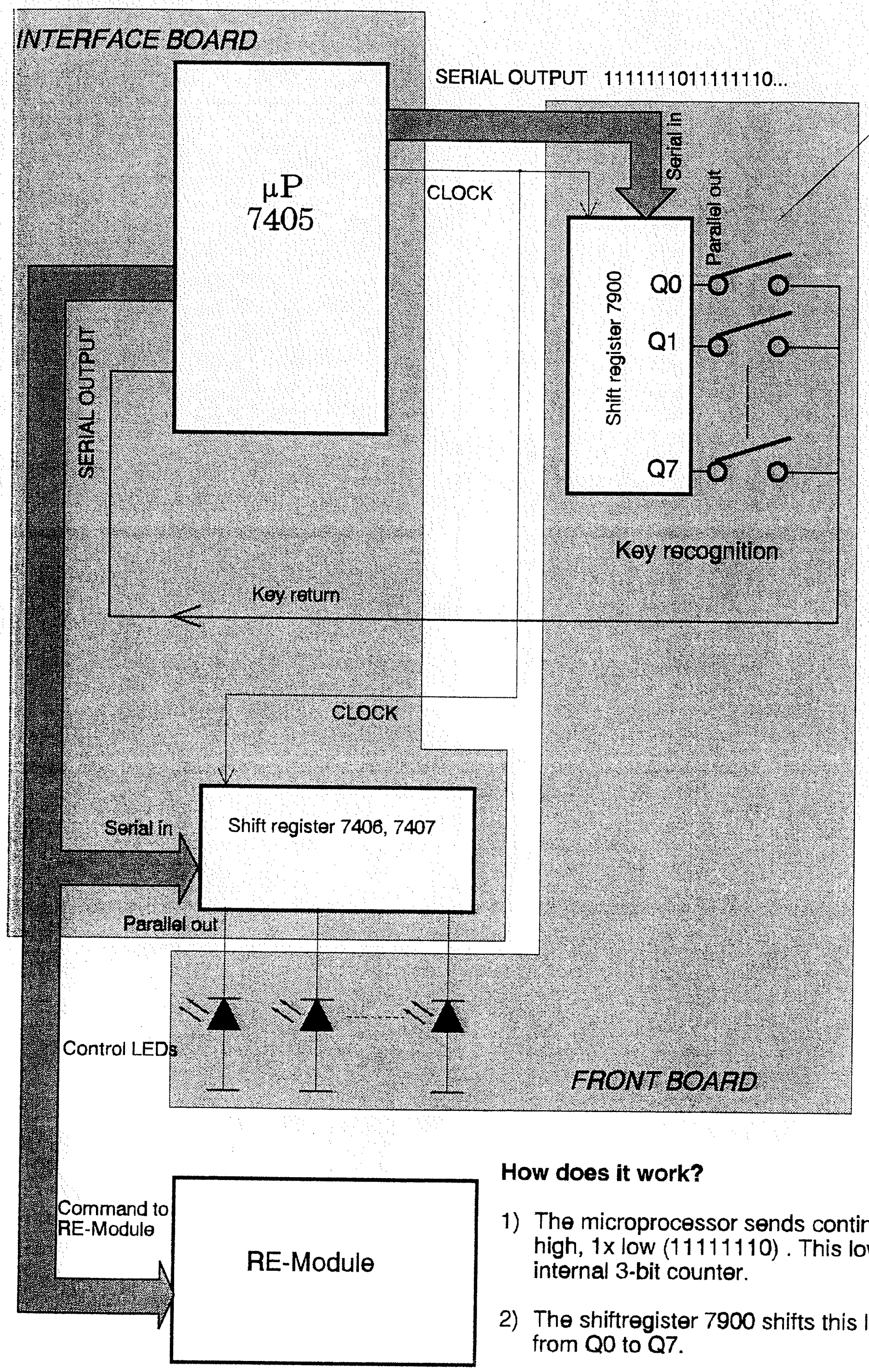
Prin


INTER
SERIAL OUTPUT
Con
Con
RE-


7405
TMP87C00
VDD
RAM
256 x8bit
ROM
16k x8bit
CPU
INTERRUPT
VSS
Reset
Clock
Data
EL-out
K1
K0
Easylink circuit
+5
7403
BC558
7404
BC548
EL In/out
EL In
analog tape supply
1420
T250mA
UL:T315mA (for /17 version)
1401
EL In/out 4
EL 5
PDn 6
low level = power down
+V 10
+14V 11
Pb right 15
Pb left 16
Tape 17
Rec left 18
Rec right 19
TO AMPLIFIER / RECEIVER
7401
7805
7412
LM317
7402
LM317
Heatsink
+10.5V
+15V
1402
(+5V)
(PDN)
(PGND)
(PVCC)
(ROUT)
(LOUT)
(LIN)
(RIN)
(VCC)
(GND)
TO RE TAPE MODULE (1660)
1403
Clock
Data
Reset
(SCLK)
(SD)
(RESET)
TO RE TAPE MODULE (1655)

Principle function of Interface Board




INTERFACE BOARD
SERIAL OUTPUT 1111111011111110...
μP 7405
CLOCK
Serial in
Parallel out
Shift register 7900
Q0
Q1
Q7
Key recognition
Key return
SERIAL OUTPUT
CLOCK
Serial in
Shift register 7406, 7407
Parallel out
Control LEDs
FRONT BOARD
Command to RE-Module
RE-Module

How does it work?

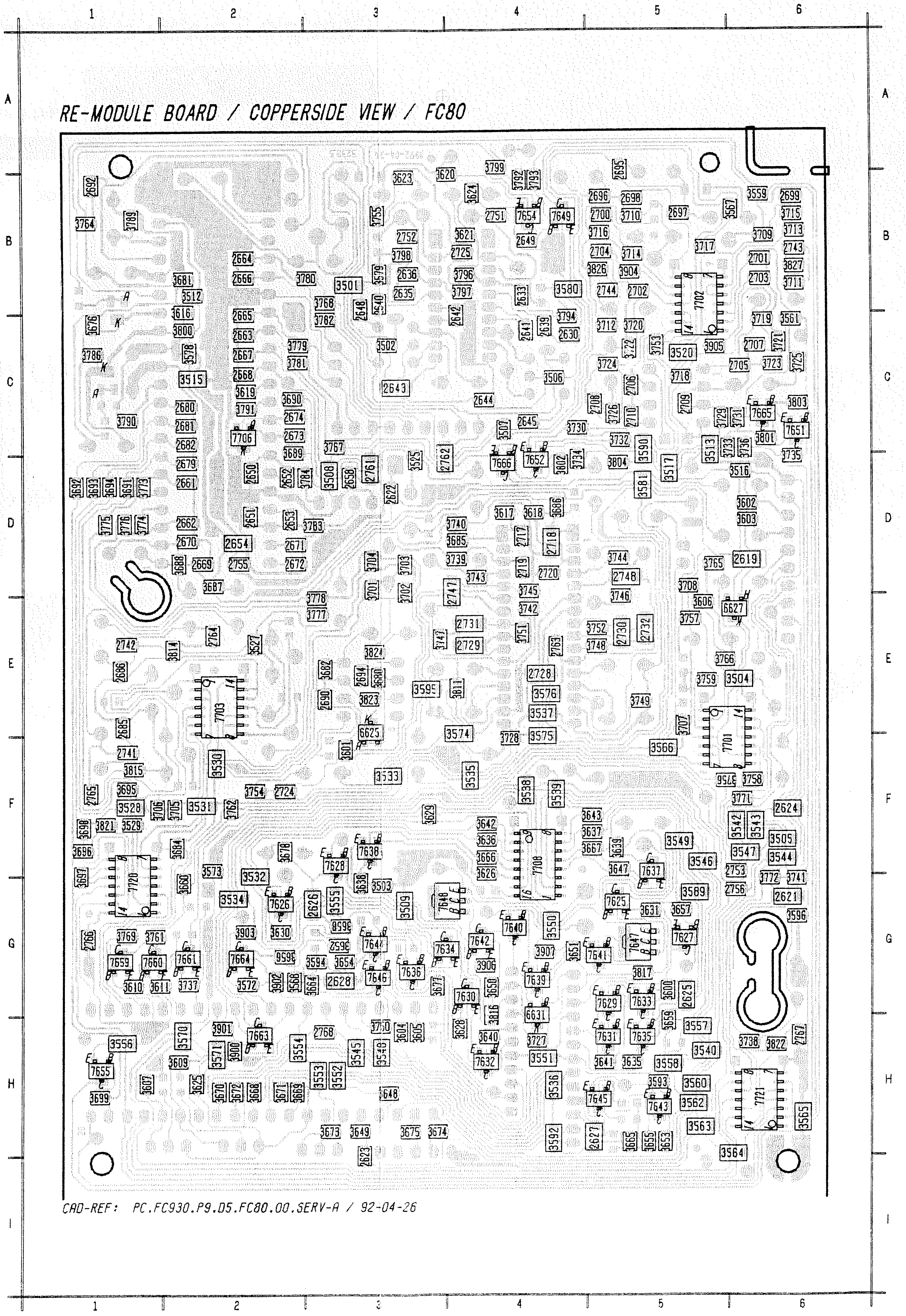
1) The microprocessor sends continously an 8-bit word. 7x high, 1x low (11111110) . This low is derived from an internal 3-bit counter.

2) The shiftregister 7900 shifts this low with each clock pulse from Q0 to Q7.

3) If the line "key return" is detected high the μP knows: **no button depressed**.
If the line "key return" is detected low the μP knows in dependence of the internal counter **which button** is depressed.
In this case the μP sends the command according to the depressed key to the RE-Module and than also a serial 16-bit word to the shift register 7406, 7407 and activates them with the line StrD (Strobe Diodes).

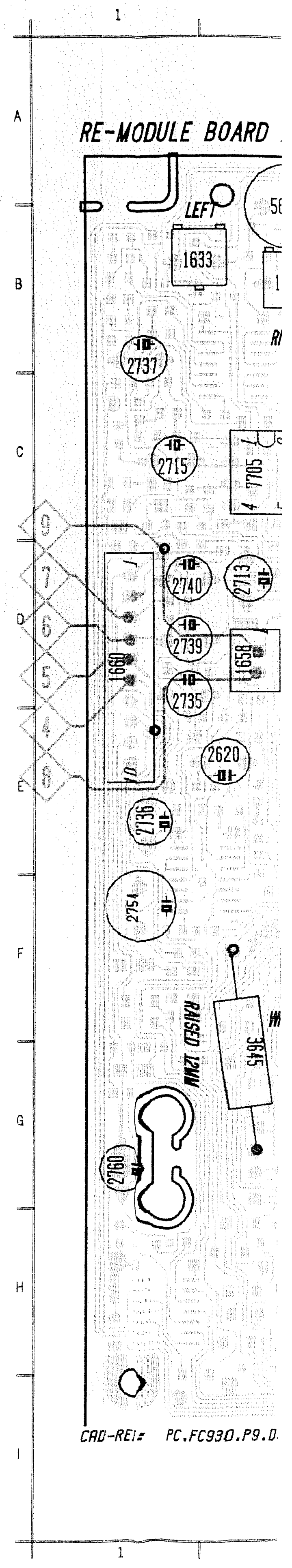
2619	D 6	2731	E 4	3567	B 6	3672	H 2	3751	E 4	7634	G 3
2621	G 6	2732	E 5	3568	G 2	3673	H 3	3752	E 5	7635	H 5
2622	D 3	2741	F 1	3570	H 2	3674	H 3	3753	C 5	7636	G 3
2623	H 3	2742	E 1	3571	H 2	3675	H 3	3754	F 2	7637	F 5
2624	F 6	2743	B 6	3572	G 2	3676	C 1	3755	B 3	7638	F 3
2625	G 5	2744	B 5	3573	F 2	3677	G 3	3756	F 5	7639	G 4
2626	G 3	2747	D 4	3574	E 4	3678	F 2	3757	E 5	7640	G 4
2627	H 5	2748	D 5	3575	F 4	3680	E 3	3758	F 6	7641	G 5
2628	G 3	2751	B 4	3576	E 4	3681	B 2	3759	E 5	7642	G 4
2630	C 4	2752	B 3	3578	C 2	3682	E 3	3761	G 1	7643	H 5
2633	B 4	2753	F 6	3579	B 3	3684	F 2	3762	F 2	7644	G 3
2635	B 3	2755	D 2	3580	B 4	3685	D 4	3764	B 1	7645	H 5
2636	B 3	2756	G 6	3581	D 5	3686	D 4	3765	D 5	7646	G 3
2639	C 4	2761	D 3	3589	G 5	3687	D 2	3766	E 5	7647	G 5
2640	B 3	2762	D 3	3590	C 5	3688	D 2	3767	C 3	7648	G 3
2641	C 4	2763	E 4	3592	H 4	3689	C 2	3768	B 3	7649	B 4
2642	C 4	2764	E 2	3593	H 5	3690	C 2	3769	G 1	7651	C 6
2643	C 3	2765	F 1	3594	G 3	3691	D 1	3771	F 6	7652	D 4
2644	C 4	2766	G 1	3595	E 3	3692	D 1	3772	G 6	7654	B 4
2645	C 4	2767	H 6	3596	G 6	3693	D 1	3773	D 1	7655	H 1
2648	B 3	2768	H 3	3600	G 5	3694	D 1	3774	D 1	7659	G 1
2649	B 4	3501	B 3	3601	F 3	3695	F 1	3775	D 1	7660	G 1
2650	D 2	3502	C 3	3602	D 6	3696	F 1	3776	D 1	7661	G 2
2651	D 2	3503	G 3	3603	D 6	3697	F 1	3777	E 3	7663	H 2
2652	D 2	3504	E 6	3604	H 3	3698	F 1	3778	E 3	7664	G 2
2653	D 2	3505	F 6	3605	H 3	3699	H 1	3779	C 2	7665	C 6
2654	D 2	3506	C 4	3606	E 5	3701	D 3	3780	B 3	7666	D 4
2658	D 3	3507	C 4	3607	H 1	3702	D 3	3781	C 2	7701	F 5
2661	D 2	3508	D 3	3609	H 2	3703	D 3	3782	C 3	7702	B 5
2662	D 2	3509	G 3	3610	G 1	3704	D 3	3783	D 3	7703	E 2
2663	C 2	3512	B 2	3611	G 1	3705	F 2	3784	D 2	7706	C 2
2664	B 2	3513	C 5	3616	B 2	3706	F 1	3786	C 1	7708	F 4
2665	C 2	3515	C 2	3617	D 4	3707	E 5	3789	B 1	7720	G 1
2666	B 2	3516	D 6	3618	D 4	3708	D 5	3790	C 1	7721	H 6
2667	C 2	3517	D 5	3619	C 2	3709	B 6	3791	C 2		
2668	C 2	3520	C 5	3620	B 4	3710	B 5	3792	B 4		
2669	D 2	3525	D 3	3621	B 4	3711	B 6	3793	B 4		
2670	D 2	3527	E 2	3623	B 3	3712	C 5	3794	C 4		
2671	D 2	3528	F 1	3624	B 4	3713	B 6	3796	B 4		
2672	D 2	3529	F 1	3625	H 2	3714	B 5	3797	B 4		
2673	C 2	3530	F 2	3626	F 4	3715	B 6	3798	B 3		
2674	C 2	3531	F 2	3628	H 4	3716	B 5	3799	A 4		
2679	D 2	3532	G 2	3629	F 3	3717	B 5	3800	C 2		
2680	C 2	3533	F 3	3630	G 2	3718	C 5	3801	C 6		
2681	C 2	3534	G 2	3631	G 5	3719	C 6	3802	D 4		
2682	C 2	3535	F 4	3635	H 5	3720	C 5	3803	C 6		
2685	E 1	3536	H 4	3636	F 4	3721	C 6	3804	D 5		
2686	E 1	3537	E 4	3637	F 5	3722	C 5	3811	E 4		
2690	E 3	3538	F 4	3638	G 3	3723	C 6	3814	E 2		
2692	B 1	3539	F 4	3639	F 5	3724	C 5	3815	F 1		
2694	E 3	3540	H 5	3640	H 4	3725	C 6	3816	G 4		
2695	A 5	3542	F 6	3641	H 5	3726	C 5	3817	G 5		
2696	B 5	3543	F 6	3642	F 4	3727	H 4	3821	F 1		
2697	B 5	3544	F 6	3643	F 5	3728	F 4	3822	H 6		
2698	B 5	3545	H 3	3647	F 5	3729	C 5	3823	E 3		
2699	B 6	3546	F 5	3648	H 3	3730	C 4	3824	E 3		
2700	B 5	3547	F 6	3649	H 3	3731	C 6	3826	B 5		
2701	B 6	3548	H 3	3650	G 4	3732	C 5	3827	B 6		
2702	B 5	3549	F 5	3651	G 4	3733	C 5	3900	H 2		
2703	B 6	3550	G 4	3652	G 3	3734	D 4	3901	H 2		
2704	B 5	3551	H 4	3653	H 5	3735	D 6	3902	G 2		
2705	C 6	3552	H 3	3654	G 3	3736	C 6	3903	G 2		
2706	C 5	3553	H 3	3655	H 5	3737	G 2	3904	B 5		
2707	C 6	3554	H 2	3656	G 2	3738	H 6	3905	C 5		
2708	C 5	3555	G 3	3657	G 5	3739	D 4	6625	E 3		
2709	C 5	3556	H 1	3658	G 3	3740	D 4	6627	E 6		
2710	C 5	3557	H 5	3659	H 5	3741	G 6	6631	G 4		
2717	D 4	3558	H 5	3660	G 2	3742	E 4	7625	G 5		
2718	D 4	3559	B 6	3664	G 3	3743	D 4	7626	G 2		
2719	D 4	3560	H 5	3665	H 5	3744	D 5	7627	G 5		
2720	D 4	3561	C 6	3666	F 4	3745	D 4	7628	F 3		
2724	F 2	3562	H 5	3667	F 5	3746	E 5	7629	G 5		
2725	B 4	3563	H 5	3668	H 2	3747	E 3	7630	G 4		
2728	E 4	3564	H 6	3669	H 2	3748	E 5	7631	H 5		
2729	E 4	3565	H 6	3670	H 2	3749	E 5	7632	H 4		
2730	E 5	3566	F 5	3671	H 2	3750	H 3	7633	G 5		

RE-MODULE BOARD / COPPERSIDE VIEW / FC80

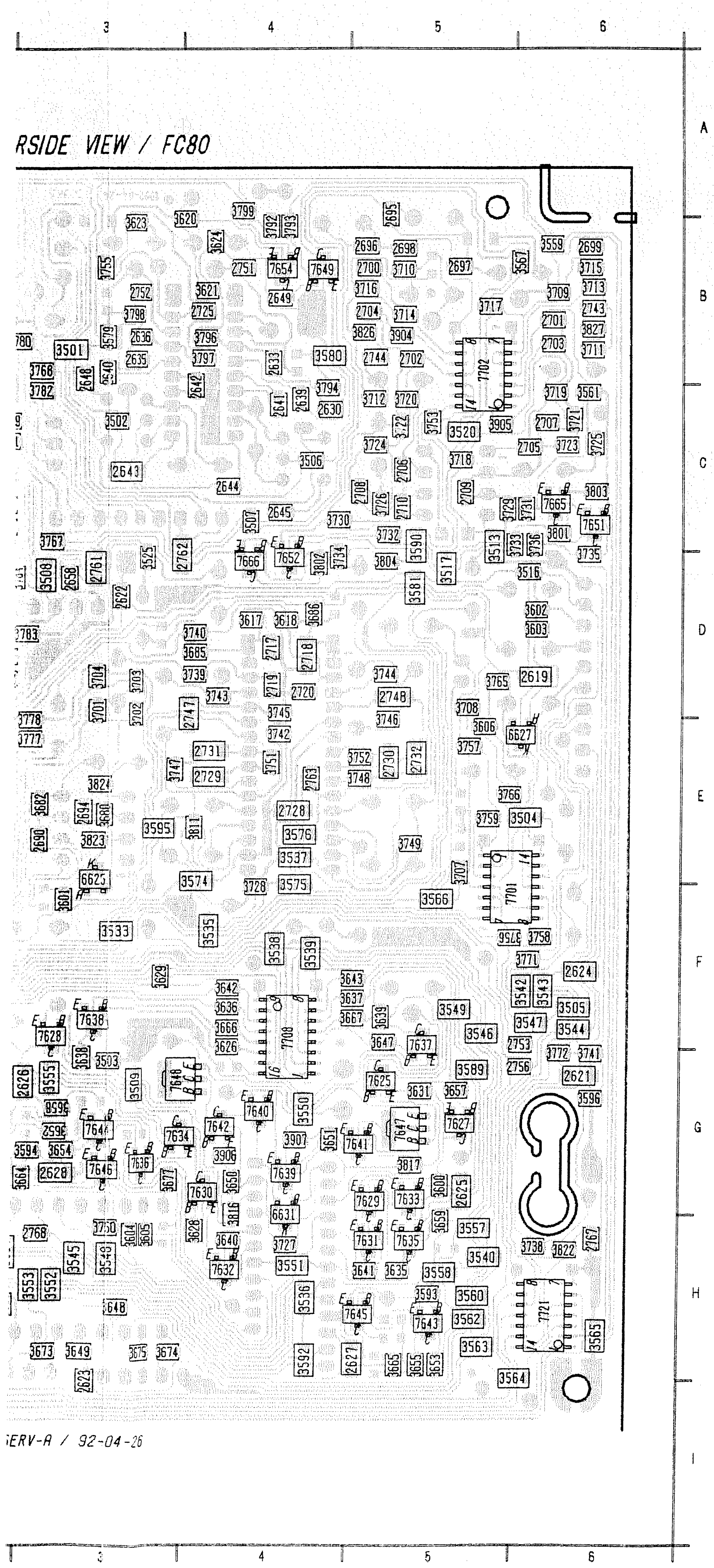


CAD-REF: PC.FC930.P9.D5.FC80.00.SERV-A / 92-04-26

RE-MODULE BOARD

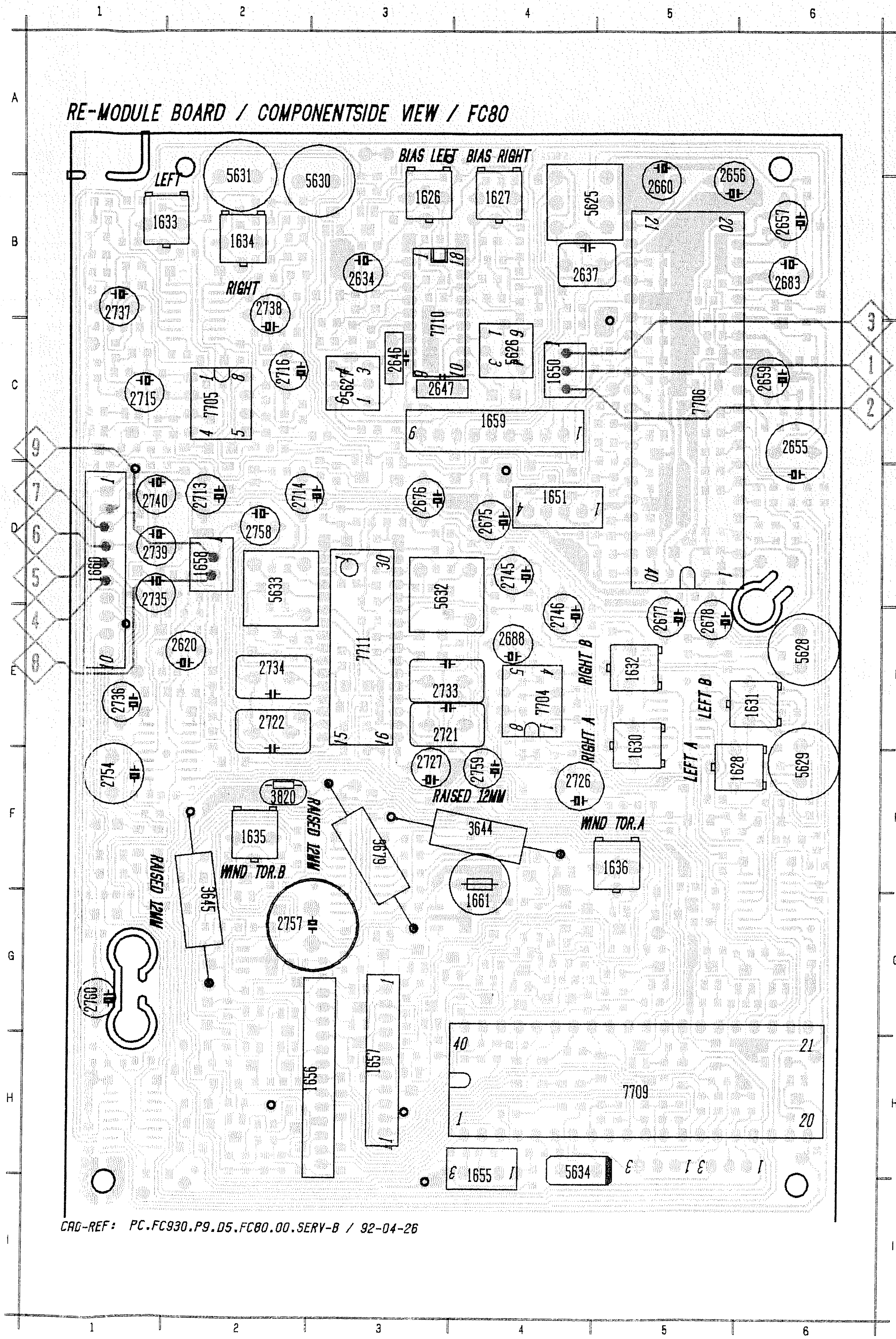


CAD-REF: PC.FC930.P9.D



RSIDE VIEW / FC80

ERV-A / 92-04-26

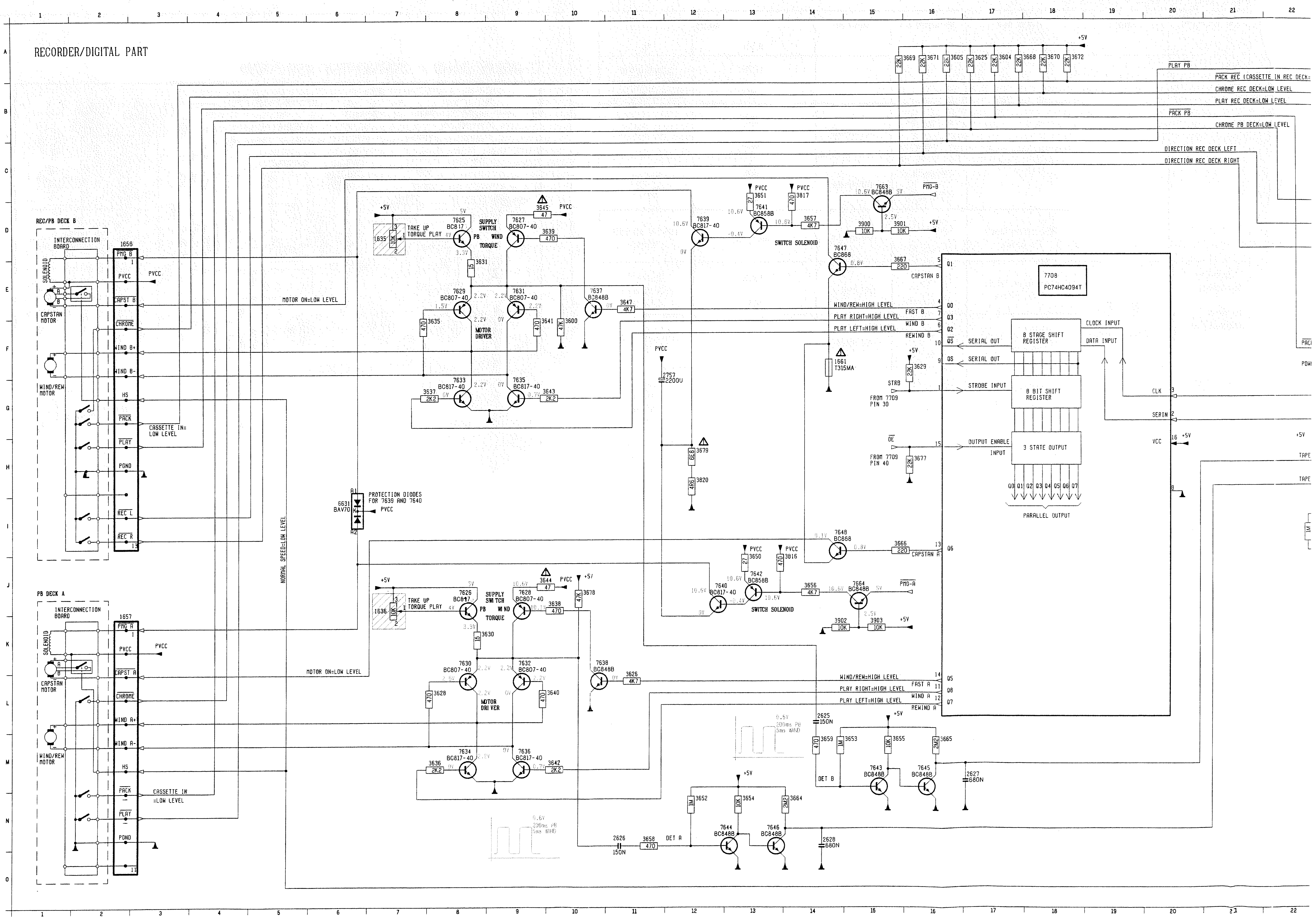


RE-MODULE BOARD / COMPONENTSIDE VIEW / FC80

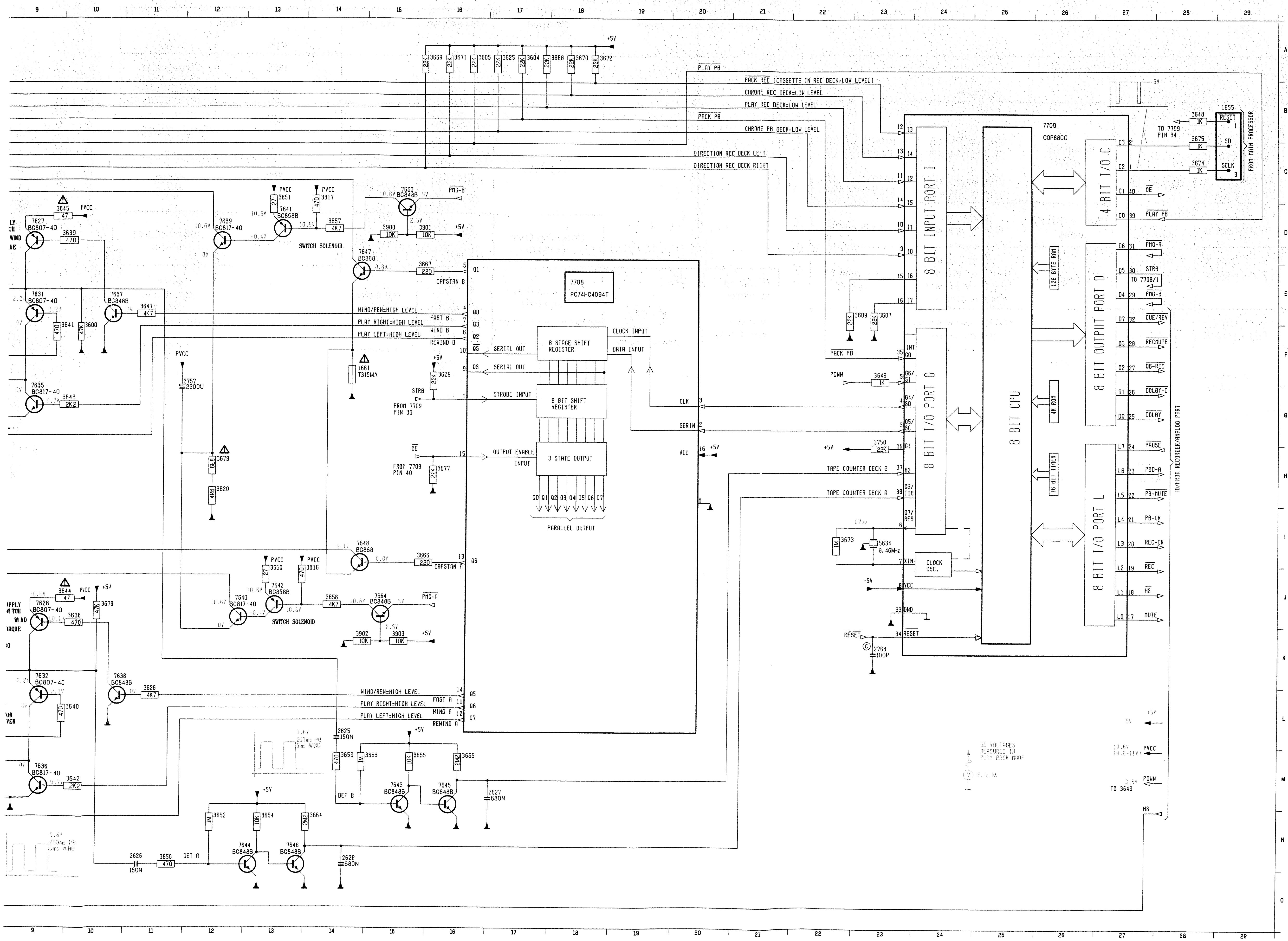
CAD-REF: PC.FC930.P9.D5.FC80.00.SERV-B / 92-04-26

1626	B 3
1627	B 4
1628	F 5
1630	E 5
1631	E 6
1632	E 5
1633	B 1
1634	B 2
1635	F 2
1636	F 5
1650	C 4
1651	D 4
1655	H 4
1656	H 3
1657	H 3
1658	D 2
1659	C 4
1660	D 1
1661	G 4
2620	E 2
2634	B 3
2637	B 4
2646	C 3
2647	C 3
2655	C 6
2656	A 5
2657	B 6
2659	C 6
2660	B 5
2675	D 4
2676	D 3
2677	E 5
2678	E 5
2683	B 6
2688	E 4
2713	D 2
2714	D 2
2715	C 1
2716	C 2
2721	E 3
2722	E 2
2726	F 4
2727	F 3
2733	E 3
2734	E 2
2735	D 1
2736	E 1
2737	B 1
2738	B 2
2739	D 1
2740	D 1
2745	D 4
2746	E 4
2754	F 1
2757	G 2
2758	D 2
2759	F 4
2760	G 1
3644	F 4
3645	G 2
3679	F 3
3820	F 2
5625	B 4
5626	C 4
5627	C 3
5628	E 6
5629	F 6
5630	B 3
5631	B 2
5632	D 3
5633	D 2
5634	H 4
7704	E 4
7705	C 2
7706	C 5
7709	H 5
7710	C 3
7711	E 3

RECORDER/DIGITAL PART



REC/PB DECK B
INTERCONNECTION BOARD
SOLENOID
CAPSTAN MOTOR
WIND/REW MOTOR
1656
PMG B
PVCC
CAPST B
CHROME
WIND B+
WIND B-
HS
PACK
PLAY
PGND
REC L
REC R
CASSETTE IN= LOW LEVEL
MOTOR ON=LOW LEVEL
PB DECK A
1657
PMG A
CAPST A
WIND A+
WIND A-
CASSETTE IN =LOW LEVEL
NORMAL SPEED=LOW LEVEL
TAKE UP TORQUE PLAY
1635
1636
SUPPLY SWITCH
PB WIND TORQUE
MOTOR DRIVER
7625 BC817
7626 BC817
7627 BC807-40
7628 BC807-40
7629 BC807-40
7630 BC807-40
7631 BC807-40
7632 BC807-40
7633 BC817-40
7634 BC817-40
7635 BC817-40
7636 BC817-40
7637 BC848B
7638 BC848B
7639 BC817-40
7640 BC817-40
7641 BC858B
7642 BC858B
7643 BC848B
7644 BC848B
7645 BC848B
7646 BC848B
7647 BC868
7648 BC868
7663 BC848B
7664 BC848B
SWITCH SOLENOID
PROTECTION DIODES FOR 7639 AND 7640
6631 BAV70
1661 T315MA
2757 2200U
7708 PC74HC4094T
8 STAGE SHIFT REGISTER
8 BIT SHIFT REGISTER
3 STATE OUTPUT
CLOCK INPUT
DATA INPUT
SERIAL OUT
STROBE INPUT
OUTPUT ENABLE INPUT
PARALLEL OUTPUT
STRB FROM 7709 PIN 30
OE FROM 7709 PIN 40
CLK
SERIN
VCC
CAPSTAN B
CAPSTAN A
WIND/REW=HIGH LEVEL
PLAY RIGHT=HIGH LEVEL
PLAY LEFT=HIGH LEVEL
FAST B
WIND B
REWIND B
FAST A
WIND A
REWIND A
PMG-B
PMG-A
DET A
DET B
0.5V 200ms PB 5ms WIND
0.6V 200ms PB 5ms WIND
PLAY PB
PACK REC (CASSETTE IN REC DECK=
CHROME REC DECK=LOW LEVEL
PLAY REC DECK=LOW LEVEL
PACK PB
CHROME PB DECK=LOW LEVEL
DIRECTION REC DECK LEFT
DIRECTION REC DECK RIGHT
+5V
PVCC


7709
COP880C
8 BIT CPU
8 BIT INPUT PORT I
8 BIT I/O PORT G
4 BIT I/O C
8 BIT OUTPUT PORT D
8 BIT I/O PORT L
128 BYTE RAM
4K ROM
16 BIT TIMER
CLOCK OSC.
7708
PC74HC4094T
8 STAGE SHIFT REGISTER
8 BIT SHIFT REGISTER
3 STATE OUTPUT
PARALLEL OUTPUT
CLOCK INPUT
DATA INPUT
SERIAL OUT
STROBE INPUT
OUTPUT ENABLE INPUT
PLAY PB
PACK REC (CASSETTE IN REC DECK=LOW LEVEL)
CHROME REC DECK=LOW LEVEL
PLAY REC DECK=LOW LEVEL
PACK PB
CHROME PB DECK=LOW LEVEL
DIRECTION REC DECK LEFT
DIRECTION REC DECK RIGHT
TAPE COUNTER DECK B
TAPE COUNTER DECK A
RESET
SD
SCLK
TO 7709 PIN 34
FROM MAIN PROCESSOR
TO/FROM RECORDER/ANALOG PART
SWITCH SOLENOID
CAPSTAN B
CAPSTAN A
WIND/REW=HIGH LEVEL
PLAY RIGHT=HIGH LEVEL
PLAY LEFT=HIGH LEVEL
FAST B
WIND B
REWIND B
FAST A
WIND A
REWIND A
FROM 7709 PIN 30
FROM 7709 PIN 40
DET A
DET B
PMG-A
PMG-B
STRB
TO 7708/1
CUE/REV
RECMUTE
DB-REC
DOLBY-C
DOLBY
PAUSE
PBD-A
PB-MUTE
PB-CR
REC-CR
REC
HS
MUTE
PDWN
TO 3649
PVCC
+5V
5634 8.46MHz
1661 T315MA
DC VOLTAGES MEASURED IN PLAY BACK MODE
E.V.M.

1635	D 7
1636	J 7
1655	B29
1656	D 2
1657	K 2
1661	F14
2625	L14
2626	N11
2627	M16
2628	N14
2757	F11
2768	K23
3600	F10
3604	A17
3605	A16
3607	E23
3609	E22
3625	A17
3626	L11
3628	L 8
3629	F16
3630	K 8
3631	E 8
3635	F 7
3636	M 8
3637	G 8
3638	J10
3639	D10
3640	L 9
3641	F 9
3642	M10
3643	G10
3644	J 9
3645	D 9
3647	E11
3648	B28
3649	F23
3650	J13
3651	C13
3652	N12
3653	M14
3654	N13
3655	M15
3656	J14
3657	D14
3658	N11
3659	M14
3664	N14
3665	M16
3666	I15
3667	E15
3668	A17
3669	A15
3670	A18
3671	A16
3672	A18
3673	I22
3674	C28
3675	B28
3677	H16
3678	J10
3679	H12
3750	G23
3816	J13
3817	C14
3820	H12
3900	D15
3901	D15
3902	K14
3903	K15
5634	I23
6631	I 6
7625	D 8
7626	J 8
7627	D 9
7628	J 9
7629	E 8
7630	K 8
7631	E 9
7632	K 9
7633	G 8
7634	M 8
7635	G 9
7636	M 9
7637	E10
7638	K10
7639	D12
7640	J12
7641	D13
7642	J13
7643	M15
7644	N13
7645	M16
7646	N13
7647	D14
7648	I14
7663	C15
7664	J15
7708	E18
7709	B26

Adjustment table

General

Adjustment	Cassette	Recorder	Measure on	Read on	Adjust	
					with	to
Motor speed	SBC 420 3150 Hz		⟨8⟩ or ⟨9⟩ or DCC out	Frequency counter		
High speed[1]		PLAY Deck **A** PLAY Deck **B**			3704 on Deck **A** 3704 on Deck **B**	6300 Hz ± 0,3% 6300 Hz ± 0,3%
Normal speed	4822 397 30071	PLAY Deck **A** PLAY Deck **B**			3705 on Deck **A** 3705 on Deck **B**	3150 Hz ± 0,3% 3150 Hz ± 0,3%
Wow & Flutter		PLAY Deck **A** PLAY Deck **B**		Wow & Flutter meter	check only (normal speed)	≤ 0,15% WGHT
Azimuth	SBC 420 10 kHz 4822 397 30071	PLAY Deck **A** PLAY Deck **B**		mV-meter	Left hand screw (normal direction) Right hand screw (reverse direction)	max. output left = right
Take up torque	811CTM 4822 395 30054	PLAY Deck **A** High speed **A** PLAY Deck **B** High speed **B**		811CTM	1636 for normal speed for high speed check only 1635 for normal speed for high speed check only	45 - 50 g-cm 40 - 45 g-cm

Playback

Adjustment	Source	Recorder	Measure on	Read on	Adjust	
					with	to
Playback Sensitivity[2]	Dolby reference level cassette 200nWb/m	PLAY both decks	⟨8⟩ for left channel ⟨9⟩ for right channel	V-meter	1628 Deck **A** left 1630 Deck **A** right 1631 Deck **B** left 1632 Deck **B** right	550 mV ± 0,5dB
Playback[2] Frequ. response	SBC 420 4822 397 30071				check only	Limits see Fig.1

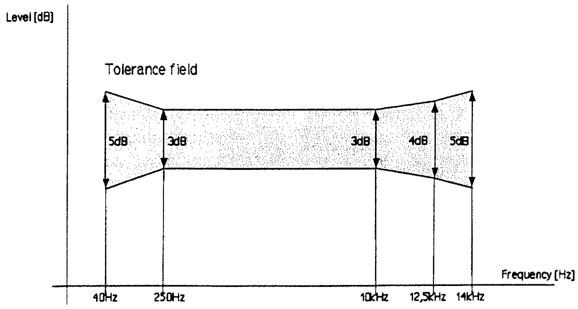


Fig. 1

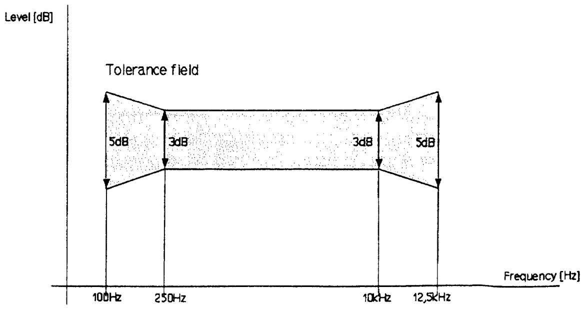


Fig. 2

---

[1] To switch to High Speed in PLAY mode use the Service Test Program. **Note!** In the Service Testprogram no output via DCC out respectively phones possible.

[2] Dolby switched off.

Recording for sets with HX-PRO

Adjustment	Input	Recorder	Measure on	Read on	Adjust	
					with	to
Bias	-				1626 1627	preadjust to mechanical left end position first
		Recording Deck CrO_2 mode	2⇔1 3⇔1	mV meter	5627 5628	max. voltage
			2⇔1 3⇔1	mV meter	1626 1627	270mV 85kHz
		Recording Deck Fe mode	2⇔1 3⇔1	mV meter	check only	190mV ±0,5dB 85kHz
Recording sensitivity for sets without ALC	6 7 65mV / 315Hz	Recording Deck CrO_2 mode	2⇔1 3⇔1	mV meter	1633 1634	25mV 3) (200nWb/m) 315Hz
		Recording Deck Fe mode	2⇔1 3⇔1	mV meter	check only	21mV ±0,5dB 3) 315Hz
Recording sensitivity for sets with ALC	6 7 500mV / 315Hz	Recording Deck CrO_2 mode	2⇔1 3⇔1	mV meter	1633 1634	30mV 3) (250nWb/m) 315Hz
		Recording Deck Fe mode	2⇔1 3⇔1	mV meter	check only	25mV ±0,5dB 3) 315Hz

Overall measurements

Adjustment	Input	Recorder	Measure on	Read on	Adjust	
					with	to
Overall sensitivity and distortion for sets without ALC	6 7 70mV / 315Hz	Recording deck CrO_2 mode	4 5	mV meter	check	500mV ±1dB 4) d ≤ 3% 5)
Overall sensitivity and distortion for sets with ALC	6 7 70mV / 315Hz	Recording deck CrO_2 mode	4 5	mV meter	check	600mV ±1dB 4) d ≤ 3% 5)
Frequency response	6 7 7mV	Recording deck CrO_2 mode	4 5	mV meter	check	limits see fig.2 6)

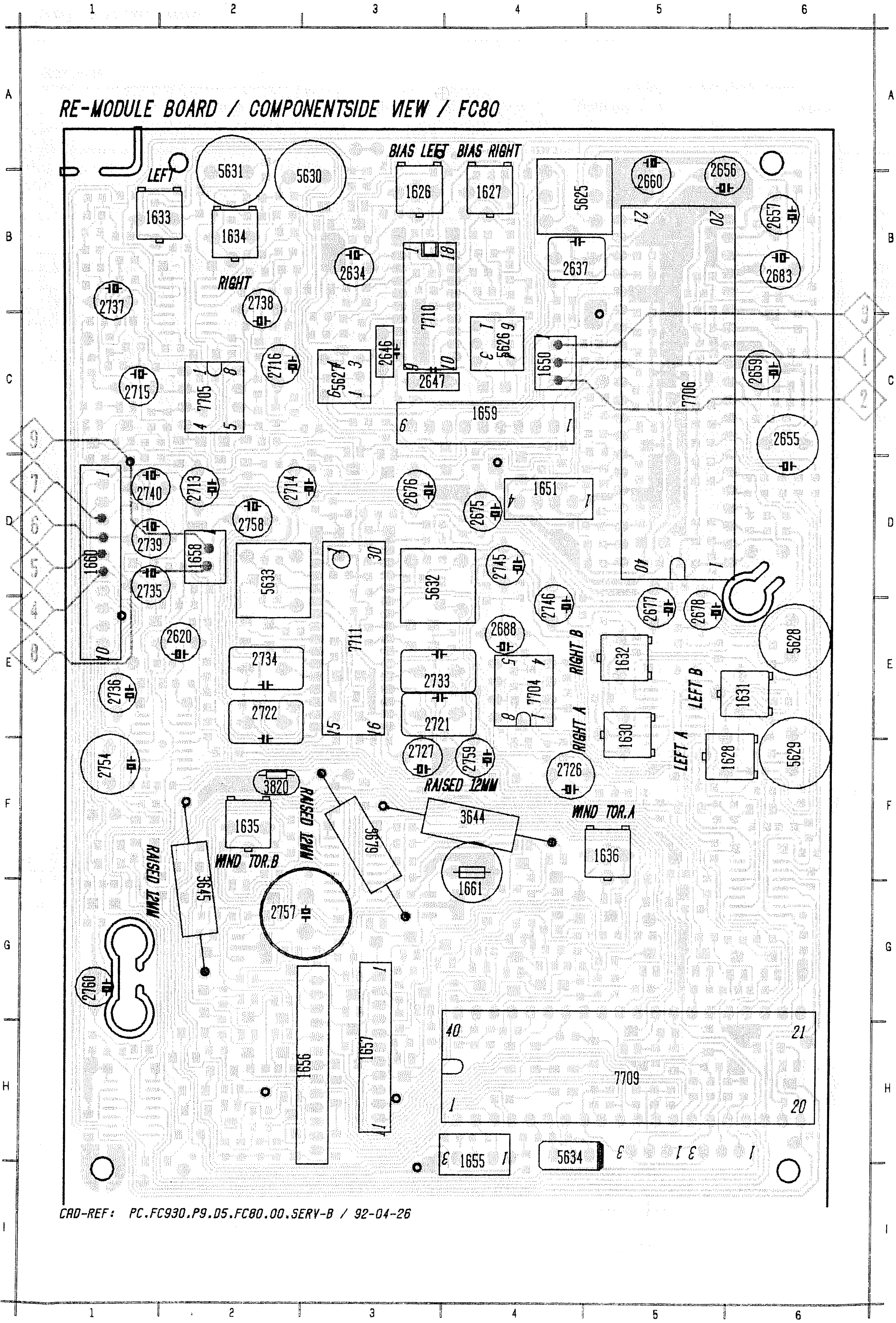
3) Use a low pass filter to attenuate the bias component or shortcircuit the bias oscillator (pin 16/18 of 7706)

4) If overall sensitivity is wrong readjust recording sensitivity and remeasure.

5) If distortion is too high increase the bias and remeasure.

6) If high frequencies are too low decrease bias and remeasure.

RE-MODULE BOARD / COMPONENTSIDE VIEW / FC80

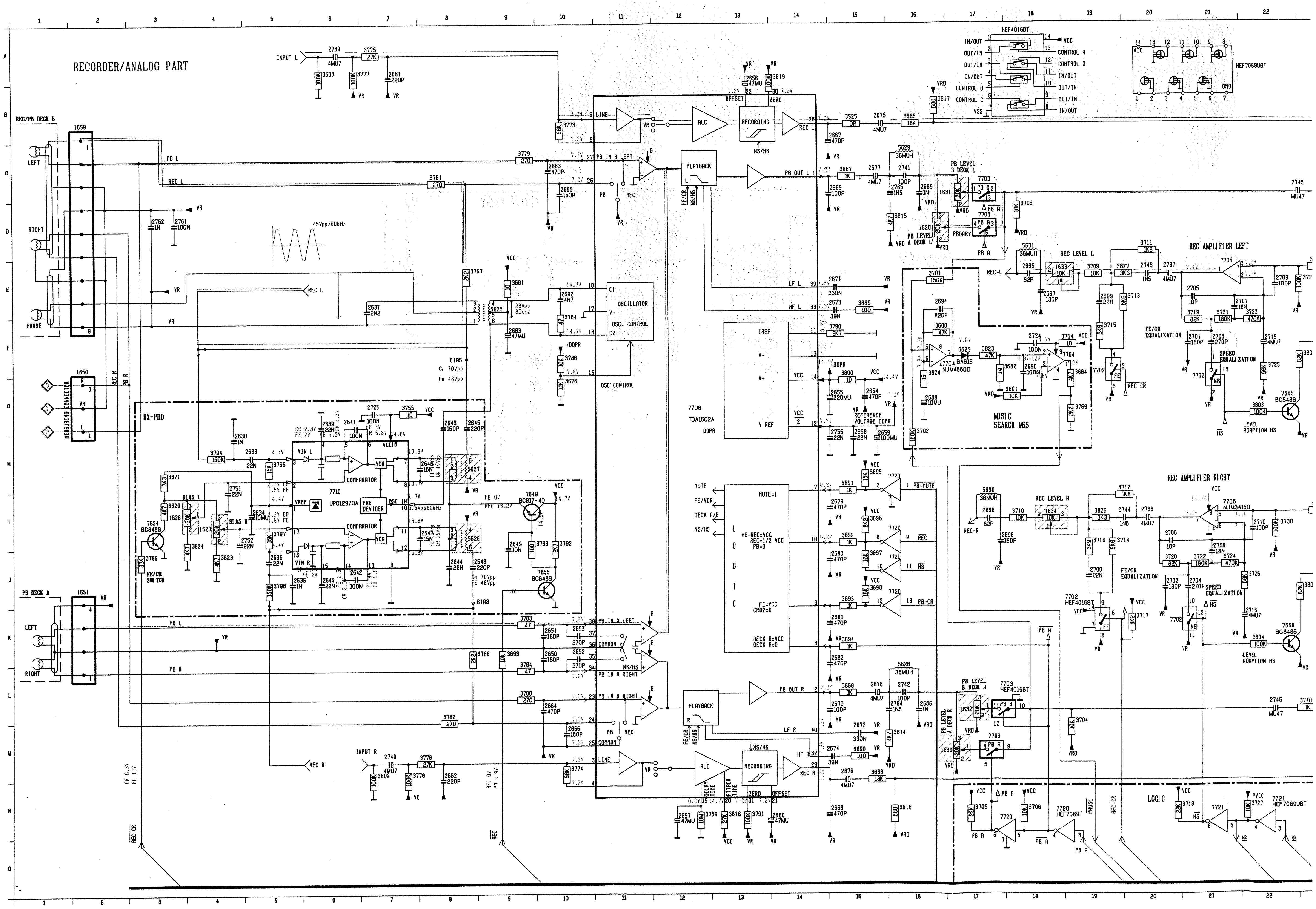


1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
LEFT
RIGHT
BIAS LEFT
BIAS RIGHT
RIGHT B
LEFT B
RIGHT A
LEFT A
RAISED 12MM
RAISED 12MM
RAISED 12MM
WIND TOR.A
WIND TOR.B
5631
5630
1626
1627
5625
2660
2656
1633
1634
2657
2637
2634
7710
2683
2737
2738
5626
2646
1650
2659
5627
2716
2715
7705
2647
7706
1659
2655
1651
2740
2713
2714
2676
2675
2758
1660
2739
1658
5633
7711
5632
2745
2735
2746
2677
2678
2620
2688
5628
2734
2733
1632
7704
1631
2736
2722
2721
1630
2754
2727
2759
2726
1628
5629
3820
3644
1635
3679
1636
3645
1661
2757
2760
1656
1657
7709
1655
5634

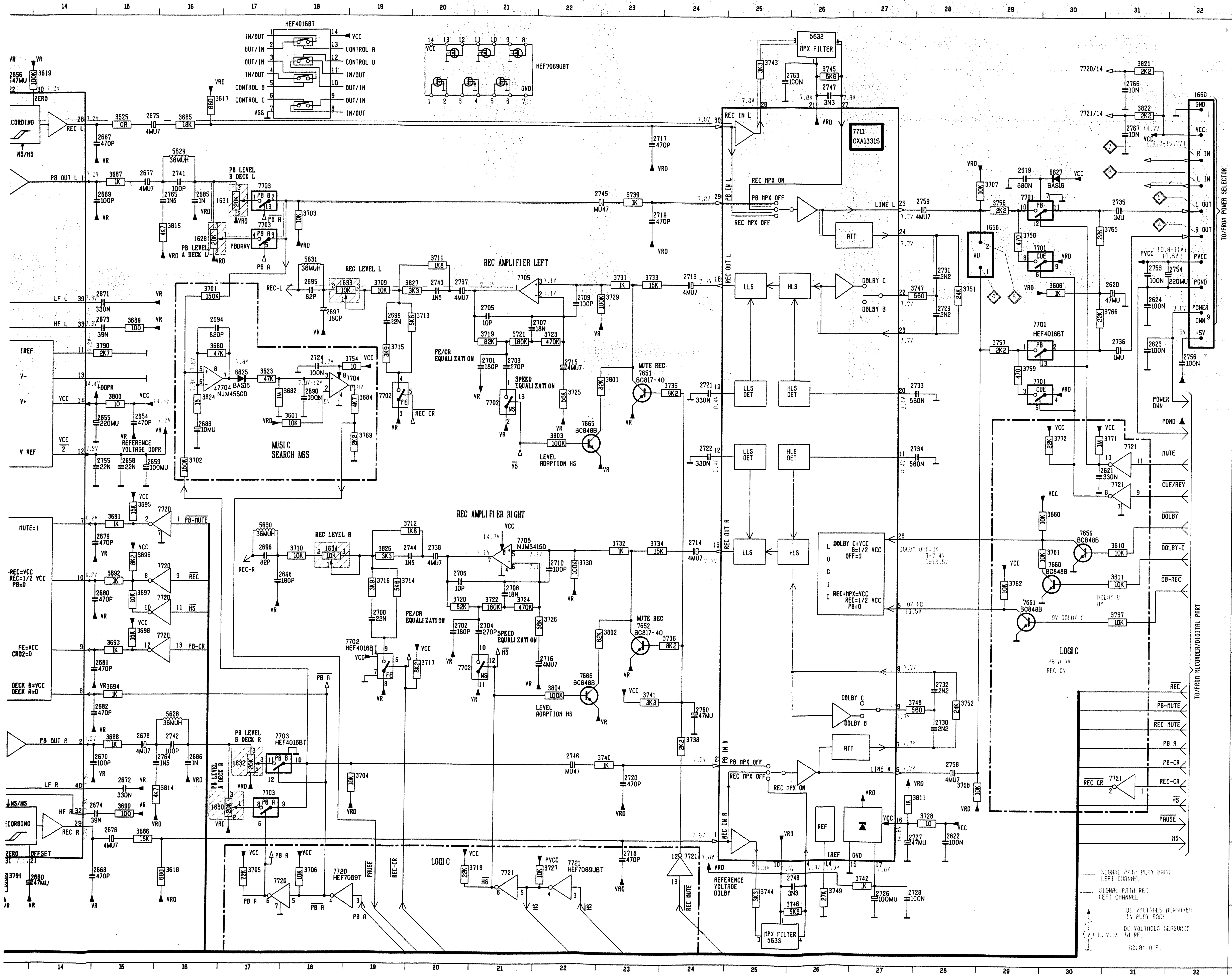
CAD-REF: PC.FC930.P9.D5.FC80.00.SERV-B / 92-04-26

1626	B	3
1627	B	4
1628	F	5
1630	E	5
1631	E	6
1632	E	5
1633	B	1
1634	B	2
1635	F	2
1636	F	5
1650	C	4
1651	D	4
1655	H	4
1656	H	3
1657	H	3
1658	D	2
1659	C	4
1660	D	1
1661	G	4
2620	E	2
2634	B	3
2637	B	4
2646	C	3
2647	C	3
2655	C	6
2656	A	5
2657	B	6
2659	C	6
2660	B	5
2675	D	4
2676	D	3
2677	E	5
2678	E	5
2683	B	6
2688	E	4
2713	D	2
2714	D	2
2715	C	1
2716	C	2
2721	E	3
2722	E	2
2726	F	4
2727	F	3
2733	E	3
2734	E	2
2735	D	1
2736	E	1
2737	B	1
2738	B	2
2739	D	1
2740	D	1
2745	D	4
2746	E	4
2754	F	1
2757	G	2
2758	D	2
2759	F	4
2760	G	1
3644	F	4
3645	G	2
3679	F	3
3820	F	2
5625	B	4
5626	C	4
5627	C	3
5628	E	6
5629	F	6
5630	B	3
5631	B	2
5632	D	3
5633	D	2
5634	H	4
7704	E	4
7705	C	2
7706	C	5
7709	H	5
7710	C	3
7711	E	3

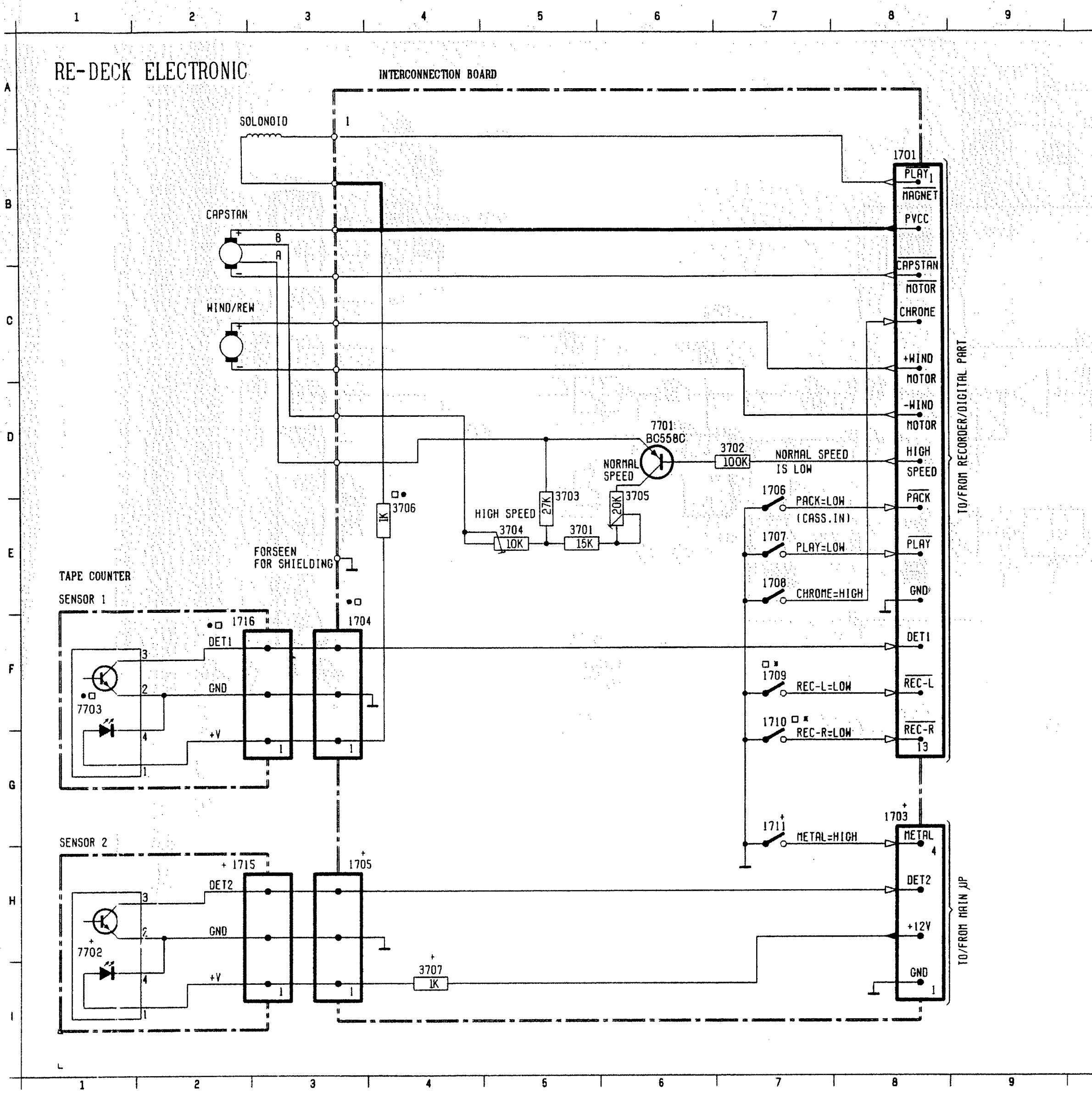
RECORDER/ANALOG PART



REC/PB DECK B
1659
LEFT
RIGHT
ERASE
PB L
REC L
REC L
VR
45Vpp/80kHz
1650
MEASURING CONNECTOR
REC R
PB R
HX-PRO
7654
BC848B
FE/CR SWITCH
BIAS L
BIAS R
1626
1627
7710
UPC1297CA
COMPARATOR
PRE DEVIDER
OSC IN
VREF
VIN L
VIN R
7649
BC817-40
7655
BC848B
BIAS
Cr 70Vpp
Fe 48Vpp
5625
5626
5627
26Vpp 80kHz
PB DECK A
1651
INPUT L
INPUT R
REC R
REC-CR
REC
OSCILLATOR
OSC. CONTROL
OSC CONTROL
LINE
ALC
RECORDING
PLAYBACK
NS/HS
FE/CR
PB IN B LEFT
PB IN A LEFT
PB IN A RIGHT
PB IN B RIGHT
COMMON
PB OUT L
PB OUT R
REC L
REC R
LF L
HF L
LF R
HF R
IREF
V-
V+
V REF
VCC
REFERENCE VOLTAGE DDPR
7706
TDA1602A
DDPR
OFFSET
ZERO
DELAY TIME
ATTACK TIME
MUTE
FE/VCR
DECK A/B
NS/HS
MUTE=1
HS-REC=VCC
REC=1/2 VCC
PB=0
FE=VCC
CR02=0
DECK B=VCC
DECK A=0
LOGIC
PB-MUTE
REC
HS
PB-CR
7720
HEF4016BT
IN/OUT
OUT/IN
CONTROL A
CONTROL B
CONTROL C
CONTROL D
VSS
VCC
HEF7069UBT
PB LEVEL B DECK L
PB LEVEL A DECK L
PB LEVEL B DECK R
PB LEVEL A DECK R
1628
1630
1631
1632
7703
HEF4016BT
PB A
PBDARV
MUSIC SEARCH MSS
7704
NJM4560D
BAS16
REC LEVEL L
REC LEVEL R
1633
1634
REC AMPLIFIER LEFT
REC AMPLIFIER RIGHT
7705
NJM3415D
FE/CR EQUALIZATION
SPEED EQUALIZATION
7702
LEVEL ADAPTION HS
7665
7666
BC848B
REC-L
REC-R
REC CR
LOGIC
7721
HEF7069UBT
PAUSE
REC-CR
PVCC
VRD
VR
VC


HEF4016BT
HEF7069UBT
IN/OUT
OUT/IN
CONTROL A
CONTROL B
CONTROL C
CONTROL D
VCC
VSS
GND
REC L
PB OUT L
PB LEVEL B DECK L
PB LEVEL A DECK L
PBDARV
REC LEVEL L
REC AMPLIFIER LEFT
FE/CR EQUALIZATION
SPEED EQUALIZATION
MUTE REC
BC817-40
BC848B
LEVEL ADAPTION HS
MUSIC SEARCH MSS
NJM4560D
BAS16
REFERENCE VOLTAGE DDPR
REC LEVEL R
REC AMPLIFIER RIGHT
NJM3415D
PB OUT R
PB LEVEL B DECK R
PB LEVEL A DECK R
LOGIC
HEF7069T
HEF7069UBT
PAUSE
REC-CR
REC MUTE
REFERENCE VOLTAGE DOLBY
MPX FILTER
7711 CXA1331S
REC IN L
PB IN L
REC MPX ON
PB MPX OFF
REC MPX OFF
REC OUT L
LINE L
ATT
LLS
HLS
LLS DET
HLS DET
DOLBY C
DOLBY B
REC OUT R
PB IN R
REC IN R
LINE R
DOLBY C=VCC B=1/2 VCC OFF=0
REC+MPX=VCC REC=1/2 VCC PB=0
LOGIC
REF
IREF
VU
CUE
TO/FROM POWER SELECTOR
GND
VCC
R IN
L IN
L OUT
R OUT
PVCC
PGND
POWER DWN
+5V
POWER DWN
PGND
MUTE
CUE/REV
DOLBY
DOLBY-C
DB-REC
REC
PB-MUTE
REC MUTE
PB A
PB-CR
REC-CR
HS
PAUSE
TO/FROM RECORDER/DIGITAL PART
MUTE=1
-REC=VCC REC=1/2 VCC PB=0
FE=VCC CRO2=0
DECK B=VCC DECK A=0
IREF
V REF
LF L
HF L
LF R
HF R
NS/HS
ZERO
OFFSET
SIGNAL PATH PLAY BACK LEFT CHANNEL
SIGNAL PATH REC LEFT CHANNEL
DC VOLTAGES MEASURED IN PLAY BACK
DC VOLTAGES MEASURED IN REC
E.V.M.
(DOLBY OFF)
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
A B C D E F G H I J K L M N O

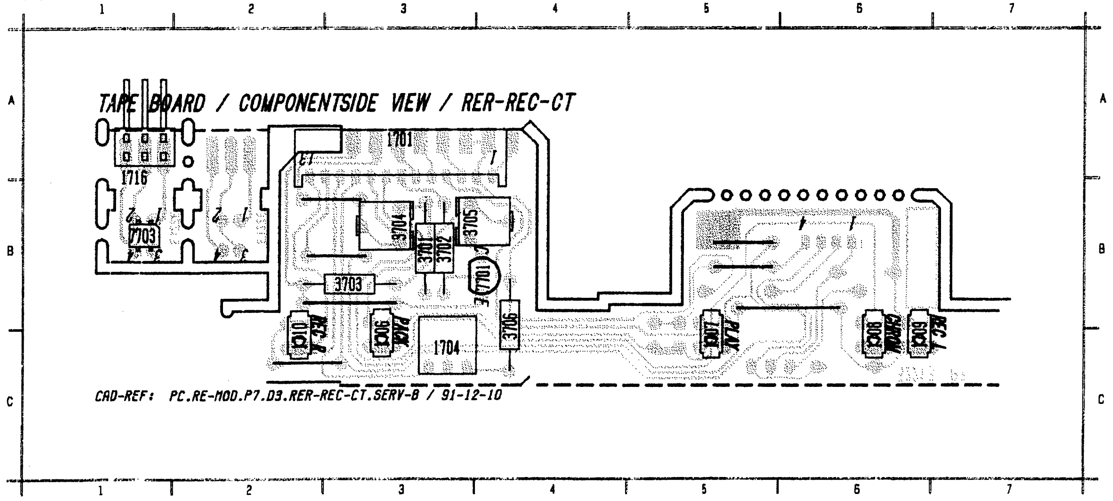
1626	I 4	2744	I20	3771	G30
1627	I 4	2745	C23	3772	G30
1628	D16	2746	L22	3773	B10
1630	M17	2747	B26	3774	M10
1631	C17	2748	N26	3775	A 7
1632	L17	2751	H 4	3776	M 8
1633	E18	2752	I 4	3777	A 6
1634	I18	2753	D31	3778	M 7
1650	F 2	2754	D31	3779	C 9
1651	J 2	2755	H14	3780	L 9
1658	D29	2756	F32	3781	C 8
1659	B 2	2758	L28	3782	L 8
1660	B32	2759	C28	3783	K 9
2619	C29	2760	K24	3784	L 9
2620	E31	2761	D 3	3786	F10
2621	H30	2762	D 3	3789	N12
2622	M28	2763	A25	3790	F15
2623	F31	2764	L15	3791	N13
2624	E31	2765	C15	3792	I10
2630	H 4	2766	B31	3793	I 9
2633	H 5	2767	B31	3794	H 4
2634	I 5	3525	B15	3796	H 5
2635	J 5	3601	G18	3797	I 5
2636	J 5	3602	M 7	3798	J 5
2637	E 7	3603	A 6	3799	J 3
2639	G 6	3606	E30	3800	G15
2640	J 6	3610	I31	3801	F22
2641	G 6	3611	I31	3802	J22
2642	J 6	3616	N13	3803	G22
2643	G 8	3617	B16	3804	K22
2644	J 8	3618	N16	3811	M27
2645	G 8	3619	A13	3814	M15
2646	H 7	3620	I 3	3815	D16
2647	I 7	3621	H 3	3821	A31
2648	J 8	3623	J 4	3822	B31
2649	I 9	3624	I 3	3823	F17
2650	K10	3660	H29	3824	G16
2651	K10	3676	G10	3826	I19
2652	K10	3680	F16	3827	E20
2653	K10	3681	E 9	5625	E 9
2654	G15	3682	F17	5626	I 8
2655	G14	3684	G19	5627	H 8
2656	A13	3685	B16	5628	L16
2657	N12	3686	M15	5629	C16
2658	H15	3687	C15	5630	I17
2659	H15	3688	L15	5631	D18
2660	N13	3689	E15	5632	A26
2661	A 7	3690	M15	5633	O25
2662	M 8	3691	H15	6625	F17
2663	C10	3692	I15	6627	C30
2664	L10	3693	J15	7649	I 9
2665	C10	3694	K15	7651	F23
2666	M10	3695	H15	7652	J23
2667	B14	3696	I15	7654	I 3
2668	N14	3697	J15	7655	J10
2669	C14	3698	J15	7659	I30
2670	L14	3699	K 9	7660	I30
2671	E15	3701	E16	7661	J29
2672	M15	3702	H16	7665	G22
2673	E15	3703	D18	7666	K22
2674	M15	3704	M19	7701	E29
2675	B15	3705	N17	7702	J18
2676	M15	3706	N18	7703	L17
2677	C15	3707	C28	7704	F16
2678	L15	3708	M28	7705	I21
2679	I14	3709	E19	7706	G12
2680	J14	3710	I18	7710	H 6
2681	K14	3711	D20	7711	B26
2682	K14	3712	I20	7720	N18
2683	F 9	3713	E19	7721	N22
2685	C16	3714	I19		
2686	L16	3715	F19		
2688	G16	3716	I19		
2690	F18	3717	K20		
2692	E10	3718	N20		
2694	E16	3719	F21		
2695	E18	3720	J20		
2696	I17	3721	F21		
2697	E18	3722	J21		
2698	I17	3723	F22		
2699	E19	3724	J21		
2700	J19	3725	F22		
2701	F21	3726	J22		
2702	J20	3727	N22		
2703	F21	3728	M28		
2704	J21	3729	E22		
2705	E21	3730	I22		
2706	I20	3731	E23		
2707	E21	3732	I23		
2708	J21	3733	E23		
2709	E22	3734	I23		
2710	I22	3735	F24		
2713	E24	3736	J24		
2714	I24	3737	J31		
2715	F22	3738	L24		
2716	K21	3739	C23		
2717	B23	3740	L23		
2718	N23	3741	K23		
2719	D23	3742	N27		
2720	M23	3743	A25		
2721	F24	3744	N25		
2722	G24	3745	A26		
2724	F18	3746	O26		
2725	G 7	3747	E28		
2726	N27	3748	K28		
2727	M27	3749	N26		
2728	N27	3751	E28		
2729	E28	3752	K28		
2730	L28	3754	F19		
2731	D28	3755	G 7		
2732	K28	3756	C29		
2733	F28	3757	F29		
2734	G28	3758	D29		
2735	C31	3759	F29		
2736	F31	3761	I29		
2737	E20	3762	I29		
2738	I20	3764	F10		
2739	A 6	3765	D30		
2740	M 7	3766	E30		
2741	C16	3767	E 8		
2742	L16	3768	K 8		
2743	E20	3769	G19		

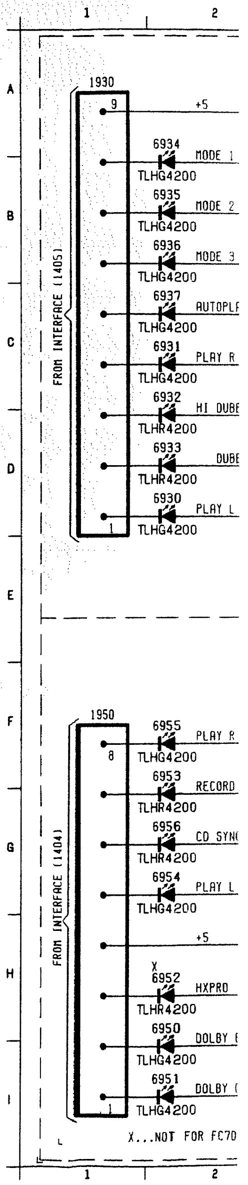

RE-DECK ELECTRONIC
INTERCONNECTION BOARD
SOLONOID
CAPSTAN
WIND/REW
PLAY
MAGNET
PVCC
CAPSTAN
MOTOR
CHROME
+WIND
MOTOR
-WIND
MOTOR
HIGH
SPEED
PACK
PLAY
GND
DET1
REC-L
REC-R
METAL
DET2
+12V
GND
1701
1703
1704
1705
1706
1707
1708
1709
1710
1711
1715
1716
7701
BC558C
NORMAL SPEED
3702
100K
NORMAL SPEED IS LOW
HIGH SPEED
3703
27K
3704
10K
3701
15K
3705
20K
3706
1K
3707
1K
PACK=LOW (CASS.IN)
PLAY=LOW
CHROME=HIGH
REC-L=LOW
REC-R=LOW
METAL=HIGH
FORSEEN FOR SHIELDING
TAPE COUNTER SENSOR 1
SENSOR 2
DET1
DET2
GND
+V
7703
7702
TO/FROM RECORDER/DIGITAL PART
TO/FROM MAIN µP

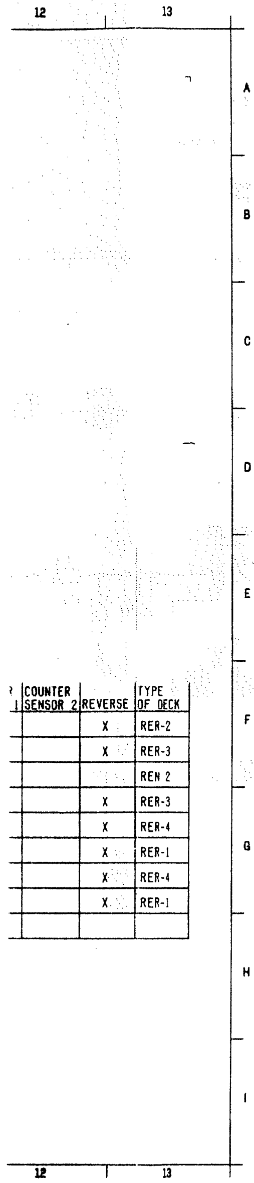
		METAL	RECORD	COUNTER SENSOR 1	COUNTER SENSOR 2	REVERSE	TYPE OF DECK
●	FC930 DECK A			X		X	RER-2
□	FC930 DECK B		X	X		X	RER-3
	FC910 DECK A						REN 2
□	FC910 DECK B		X	X		X	RER-3
	FC70 DECK A					X	RER-4
*	FC70 DECK B		X			X	RER-1
	FC80 DECK A					X	RER-4
*	FC80 DECK B		X			X	RER-1
+	NOT YET IN USE						

1701	B	8
1703	G	8
1704	F	3
1705	H	3
1706	D	7
1707	E	7
1708	E	7
1709	F	7
1710	F	7
1711	G	7
1715	H	2
1716	F	2
3701	E	5
3702	D	7
3703	D	5
3704	E	5
3705	D	6
3706	E	4
3707	I	4
7701	D	6
7702	H	1
7703	F	1

1701	A	3	1706	C	3	1708	C	6	1710	C	2	3701	B	3	3703	B	3	3705	B	3	7701	B	4
1704	C	3	1707	C	5	1709	C	6	1716	A	1	3702	B	3	3704	B	3	3706	B	4	7703	B	1

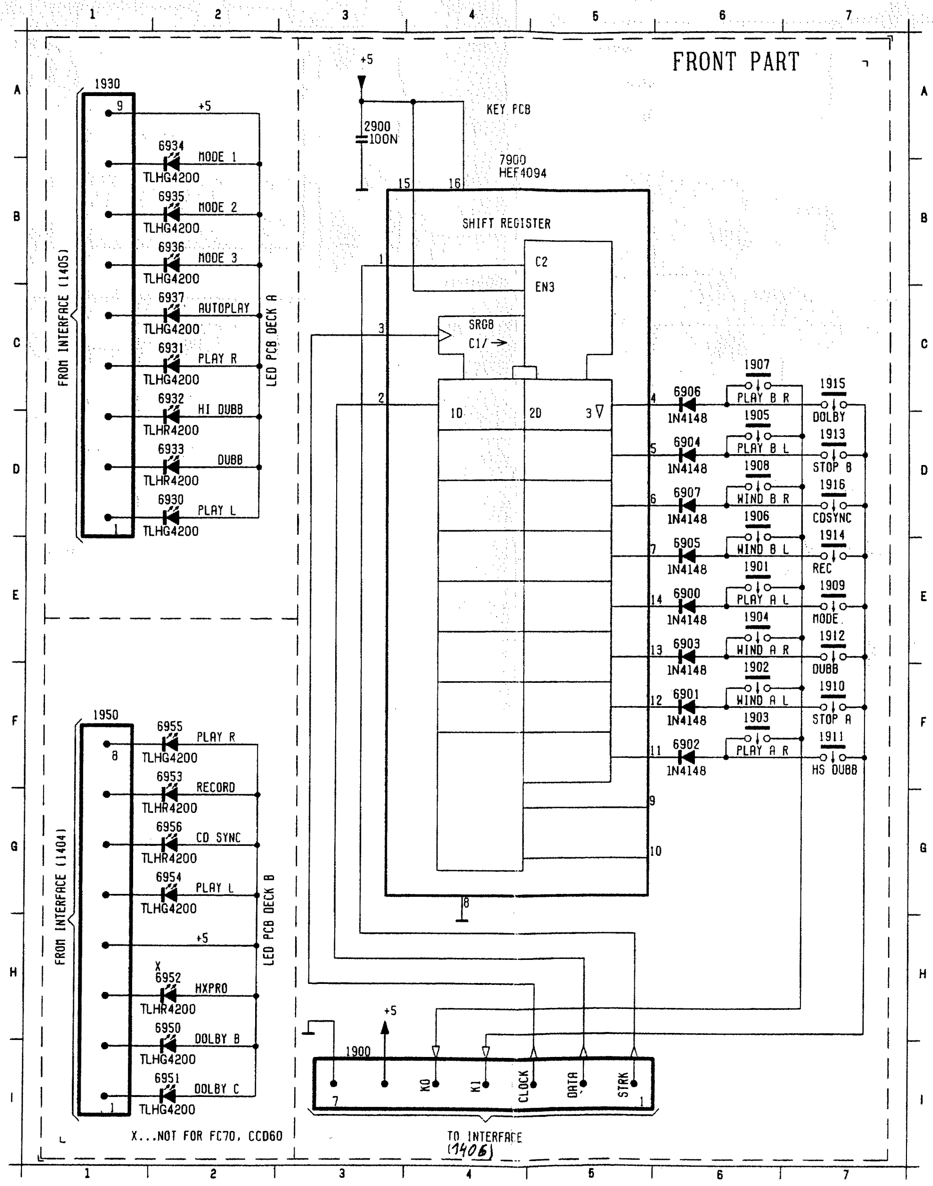

TAPE BOARD / COMPONENTSIDE VIEW / RER-REC-CT
1716
7703
1701
3704
3701
3702
3705
3703
7701
3706
1704
CAD-REF: PC.RE-MOD.P7.D3.RER-REC-CT.SERV-B / 91-12-10


1930
1950
+5
6934
MODE 1
6935
MODE 2
6936
MODE 3
6937
AUTOPLA
6931
PLAY R
6932
HI DUBB
6933
DUBB
6930
PLAY L
6955
PLAY R
6953
RECORD
6956
CD SYNC
6954
PLAY L
6952
HXPRO
6950
DOLBY
6951
DOLBY
TLHG4200
TLHR4200
FROM INTERFACE (1405)
FROM INTERFACE (1404)
X...NOT FOR FC70


12
13
A
B
C
D
E
F
G
H
I

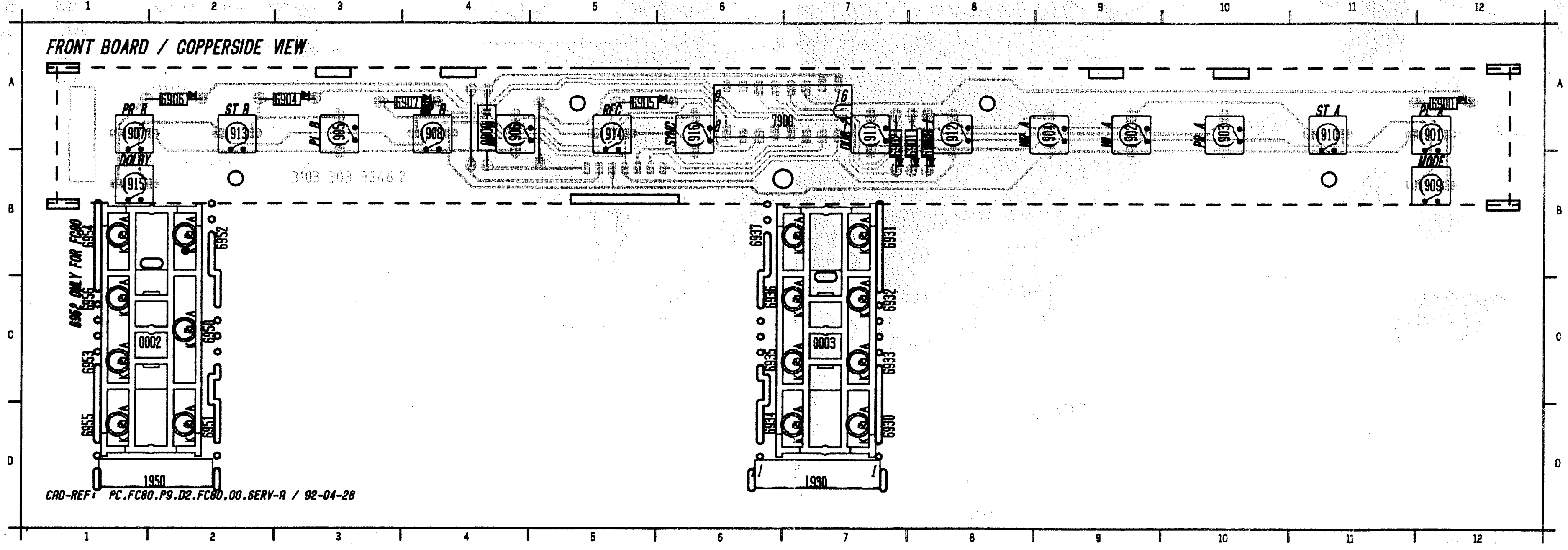
COUNTER SENSOR 2	REVERSE	TYPE OF DECK
	X	RER-2
	X	RER-3
		REN 2
	X	RER-3
	X	RER-4
	X	RER-1
	X	RER-4
	X	RER-1

1701	B 8
1703	G 8
1704	F 3
1705	H 3
1706	D 7
1707	E 7
1708	E 7
1709	F 7
1710	F 7
1711	G 7
1715	H 2
1716	F 2
3701	E 5
3702	D 7
3703	D 5
3704	E 5
3705	D 6
3706	E 4
3707	I 4
7701	D 6
7702	H 1
7703	F 1


FRONT PART
1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
1930
9
1
+5
6934
MODE 1
TLHG4200
6935
MODE 2
TLHG4200
6936
MODE 3
TLHG4200
6937
AUTOPLAY
TLHG4200
6931
PLAY R
TLHG4200
6932
HI DUBB
TLHR4200
6933
DUBB
TLHR4200
6930
PLAY L
TLHG4200
FROM INTERFACE (1405)
LED PCB DECK A
1950
8
1
6955
PLAY R
TLHG4200
6953
RECORD
TLHR4200
6956
CD SYNC
TLHR4200
6954
PLAY L
TLHG4200
+5
X
6952
HXPRO
TLHR4200
6950
DOLBY B
TLHG4200
6951
DOLBY C
TLHG4200
FROM INTERFACE (1404)
LED PCB DECK B
X...NOT FOR FC70, CCD60
+5
2900
100N
KEY PCB
7900
HEF4094
15
16
SHIFT REGISTER
1
3
2
C2
EN3
SRG8
C1/→
1D
2D
3∇
4
5
6
7
14
13
12
11
9
10
8
6906
1N4148
6904
1N4148
6907
1N4148
6905
1N4148
6900
1N4148
6903
1N4148
6901
1N4148
6902
1N4148
1907
PLAY B R
1905
PLAY B L
1908
WIND B R
1906
WIND B L
1901
PLAY A L
1904
WIND A R
1902
WIND A L
1903
PLAY A R
1915
DOLBY
1913
STOP B
1916
CDSYNC
1914
REC
1909
MODE
1912
DUBB
1910
STOP A
1911
HS DUBB
+5
1900
7
1
K0
K1
CLOCK
DATA
STRK
TO INTERFACE
(1406)

1900	I 3
1901	E 6
1902	F 6
1903	F 6
1904	E 6
1905	D 6
1906	D 6
1907	C 6
1908	D 6
1909	E 7
1910	F 7
1911	F 7
1912	E 7
1913	D 7
1914	D 7
1915	C 7
1916	D 7
1930	A 1
1950	F 1
2900	A 3
6900	E 6
6901	F 6
6902	F 6
6903	E 6
6904	D 6
6905	E 6
6906	C 6
6907	D 6
6930	D 2
6931	C 2
6932	C 2
6933	D 2
6934	A 2
6935	B 2
6936	B 2
6937	C 2
6950	H 2
6951	I 2
6952	H 2
6953	F 2
6954	G 2
6955	F 2
6956	G 2
7900	B 4

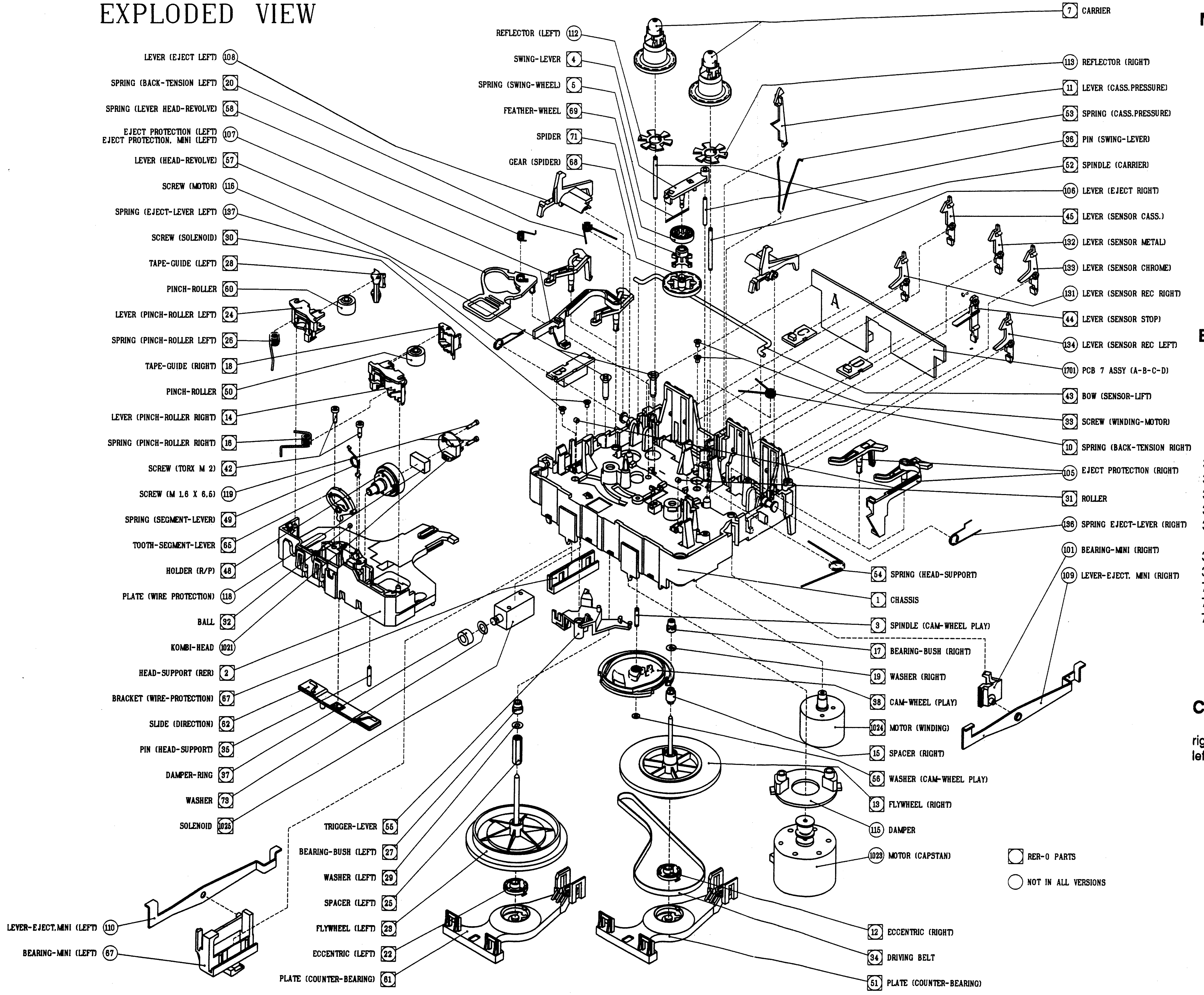
0002	C 2	1902	A 9	1905	A 3	1908	A 4	1911	A 7	1914	A 5	1930	D 7	6900	A12	6903	A 8	6906	A 2	6931	B 7	6934	D 6	6937	B 6	6952	B 2	6955	D 1
0003	C 7	1903	A10	1906	A 4	1909	B12	1912	A 8	1915	B 1	1950	D 2	6901	A 8	6904	A 3	6907	A 4	6932	C 7	6935	C 6	6950	C 2	6953	C 1	6956	C 1
1901	A12	1904	A 9	1907	A 1	1910	A11	1913	A 2	1916	A 6	2900	A 4	6902	A 7	6905	A 5	6930	D 7	6933	C 7	6936	C 6	6951	D 2	6954	B 1	7900	A 7


FRONT BOARD / COPPERSIDE VIEW

1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
PR B
907
6906
ST B
913
6904
PL B
905
6907
RP B
908
6900
906
REC
914
6905
SYNC
916
7900
8
9
16
911
912
904
902
PL A
903
ST A
910
6900
PL A
901
MODE
909
DOLBY
915
3103 303 3246 2
6952 ONLY FOR FC80
6954
6956
6953
6955
6952
6950
6951
0002
1950
6937
6936
6935
6934
0003
6931
6932
6933
6930
1930

CAD-REF: PC.FC80.P9.D2.FC80.00.SERV-A / 92-04-28

EXPLODED VIEW


LEVER (EJECT LEFT) 108
SPRING (BACK-TENSION LEFT) 20
SPRING (LEVER HEAD-REVOLVE) 58
EJECT PROTECTION (LEFT)
EJECT PROTECTION. MINI (LEFT) 107
LEVER (HEAD-REVOLVE) 57
SCREW (MOTOR) 116
SPRING (EJECT-LEVER LEFT) 137
SCREW (SOLENOID) 30
TAPE-GUIDE (LEFT) 28
PINCH-ROLLER 60
LEVER (PINCH-ROLLER LEFT) 24
SPRING (PINCH-ROLLER LEFT) 26
TAPE-GUIDE (RIGHT) 18
PINCH-ROLLER 50
LEVER (PINCH-ROLLER RIGHT) 14
SPRING (PINCH-ROLLER RIGHT) 16
SCREW (TORX M 2) 42
SCREW (M 1.6 X 6.5) 119
SPRING (SEGMENT-LEVER) 49
TOOTH-SEGMENT-LEVER 65
HOLDER (R/P) 48
PLATE (WIRE PROTECTION) 118
BALL 32
KOMBI-HEAD 1021
HEAD-SUPPORT (RER) 2
BRACKET (WIRE-PROTECTION) 67
SLIDE (DIRECTION) 62
PIN (HEAD-SUPPORT) 35
DAMPER-RING 37
WASHER 73
SOLENOID 1025
REFLECTOR (LEFT) 112
SWING-LEVER 4
SPRING (SWING-WHEEL) 5
FEATHER-WHEEL 69
SPIDER 71
GEAR (SPIDER) 68
7 CARRIER
113 REFLECTOR (RIGHT)
11 LEVER (CASS.PRESSURE)
53 SPRING (CASS.PRESSURE)
36 PIN (SWING-LEVER)
52 SPINDLE (CARRIER)
106 LEVER (EJECT RIGHT)
45 LEVER (SENSOR CASS.)
132 LEVER (SENSOR METAL)
133 LEVER (SENSOR CHROME)
131 LEVER (SENSOR REC RIGHT)
44 LEVER (SENSOR STOP)
134 LEVER (SENSOR REC LEFT)
1701 PCB 7 ASSY (A-B-C-D)
43 BOW (SENSOR-LIFT)
33 SCREW (WINDING-MOTOR)
10 SPRING (BACK-TENSION RIGHT)
105 EJECT PROTECTION (RIGHT)
31 ROLLER
136 SPRING EJECT-LEVER (RIGHT)
101 BEARING-MINI (RIGHT)
109 LEVER-EJECT. MINI (RIGHT)
A
54 SPRING (HEAD-SUPPORT)
1 CHASSIS
3 SPINDLE (CAM-WHEEL PLAY)
17 BEARING-BUSH (RIGHT)
19 WASHER (RIGHT)
38 CAM-WHEEL (PLAY)
1024 MOTOR (WINDING)
15 SPACER (RIGHT)
56 WASHER (CAM-WHEEL PLAY)
13 FLYWHEEL (RIGHT)
115 DAMPER
1023 MOTOR (CAPSTAN)
12 ECCENTRIC (RIGHT)
34 DRIVING BELT
51 PLATE (COUNTER-BEARING)
TRIGGER-LEVER 55
BEARING-BUSH (LEFT) 27
WASHER (LEFT) 29
SPACER (LEFT) 25
FLYWHEEL (LEFT) 23
ECCENTRIC (LEFT) 22
PLATE (COUNTER-BEARING) 61
LEVER-EJECT.MINI (LEFT) 110
BEARING-MINI (LEFT) 67
RER-0 PARTS
NOT IN ALL VERSIONS

Mechanical partslist tape decks

14	4822 403 20239	LEVER PINCH ROLLER
16	4822 492 71106	SPRING PINCH ROLLER
18	4822 535 93315	TAPE GUIDE RIGHT
24	4822 403 20241	LEVER PINCH ROLLER
26	4822 492 71107	SPRING PINCH ROLLER
28	4822 535 93314	TAPE GUIDE LEFT
34	4822 358 31184	DRIVING BELT
50	4822 528 70793	PINCH ROLLER
60	4822 528 70793	PINCH ROLLER
115	4822 529 10254	DAMPER
116	4822 502 11866	SCREW (MOTOR)
1021	4822 249 10434	REC/PB HEAD
1021	4822 249 30181	PLAY BACK HEAD
1023	4822 361 21506	MOTOR

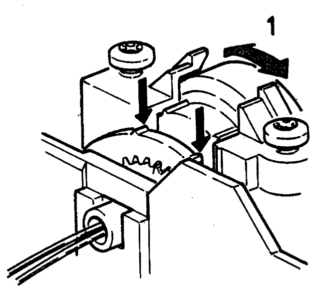
Electrical partslist tape decks

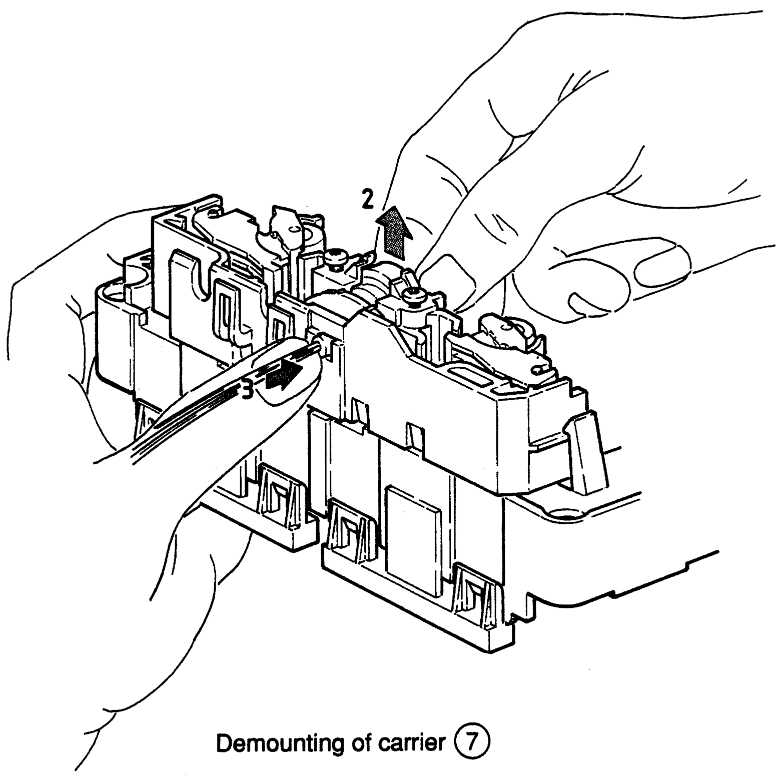
1706	4822 276 12889	
1707	4822 276 12889	
1708	4822 276 12889	
1709	4822 276 12889	
1710	4822 276 12889	
3701	4822 116 52244	
3702	4822 116 52234	
3703	4822 116 52264	
3704	4822 100 20166	
3705	4822 100 20589	
3706	4822 050 21002	
3706	4822 050 21002	
7701	5322 130 60068	BC558C
7703	4822 209 31115	NJL5165KA
7703	4822 209 31115	NJL5165KA

Complete tape transport

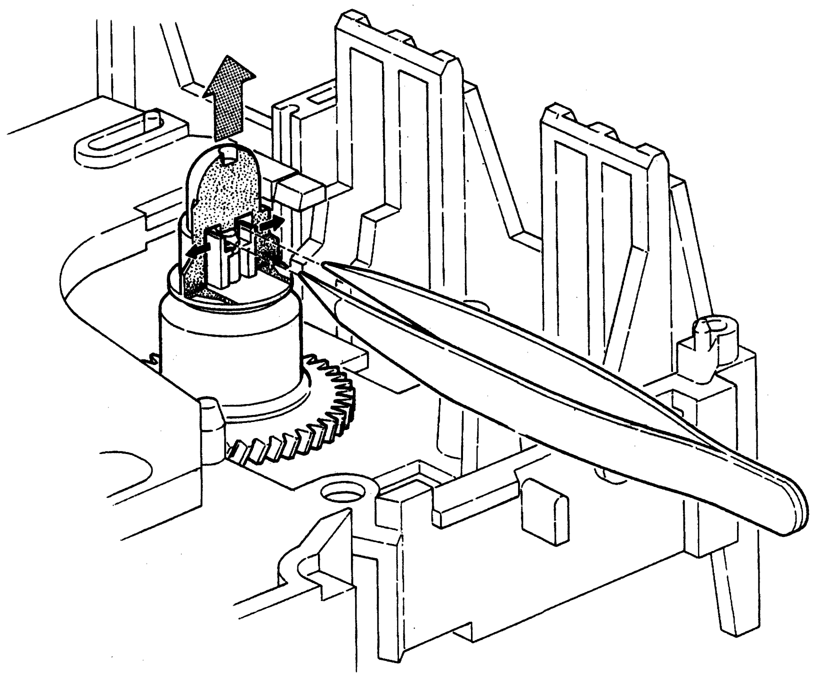
right hand deck	4822 691 20774	RER-1 TAPE DECK
left hand deck	4822 691 20776	RER-4 TAPE DECK

Demounting of rotation head

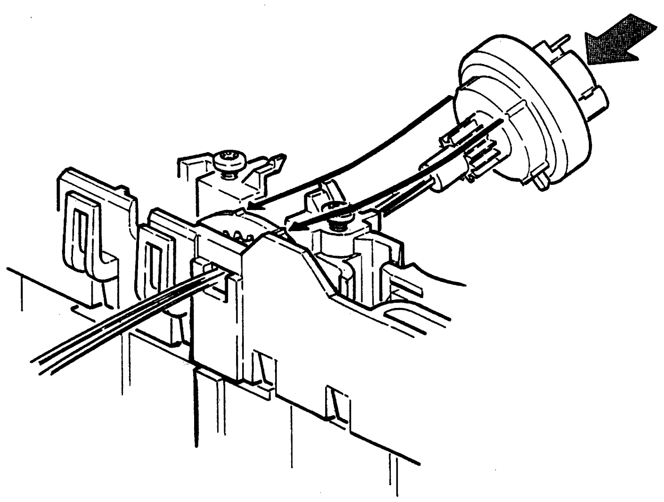




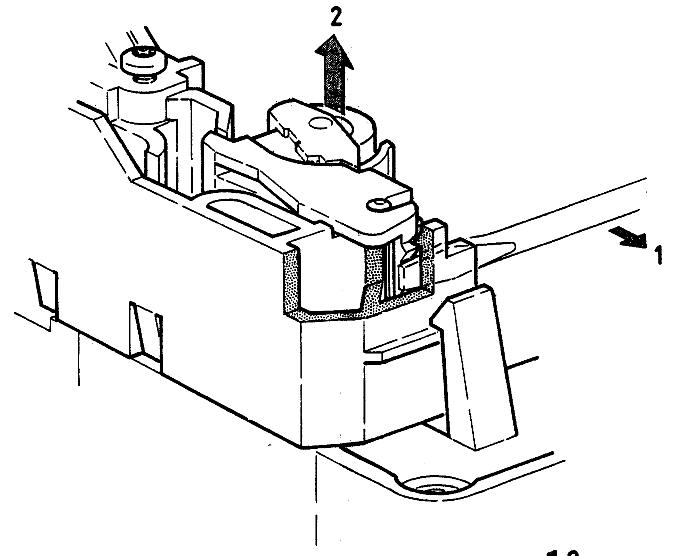
Demounting of carrier ⑦



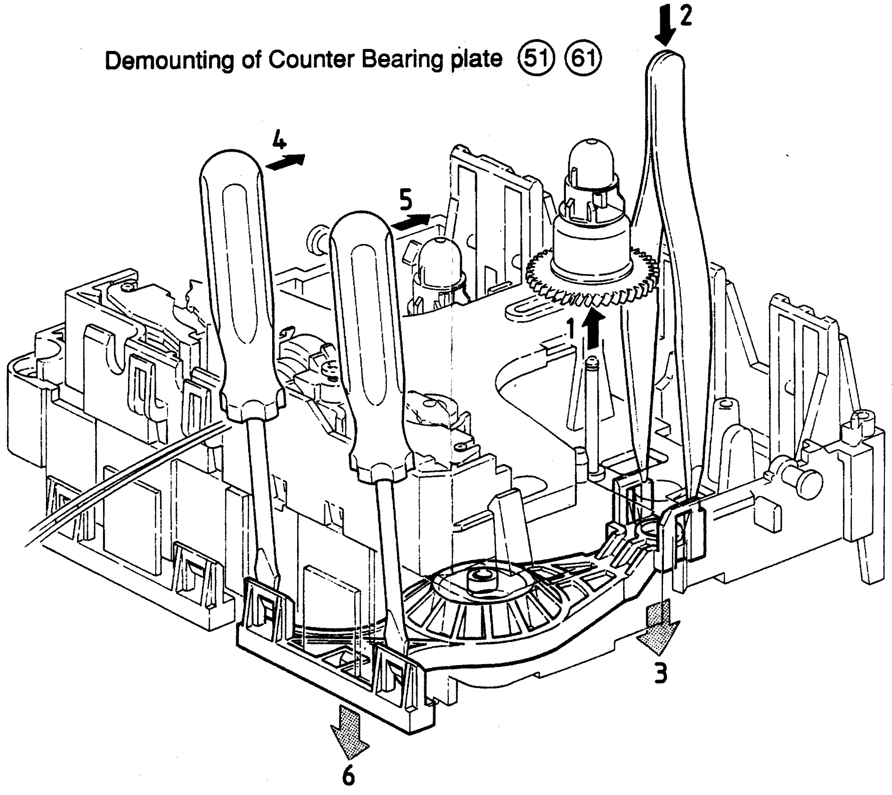
Mounting of rotation head



Demounting of pinch roller ⑭ ㉔

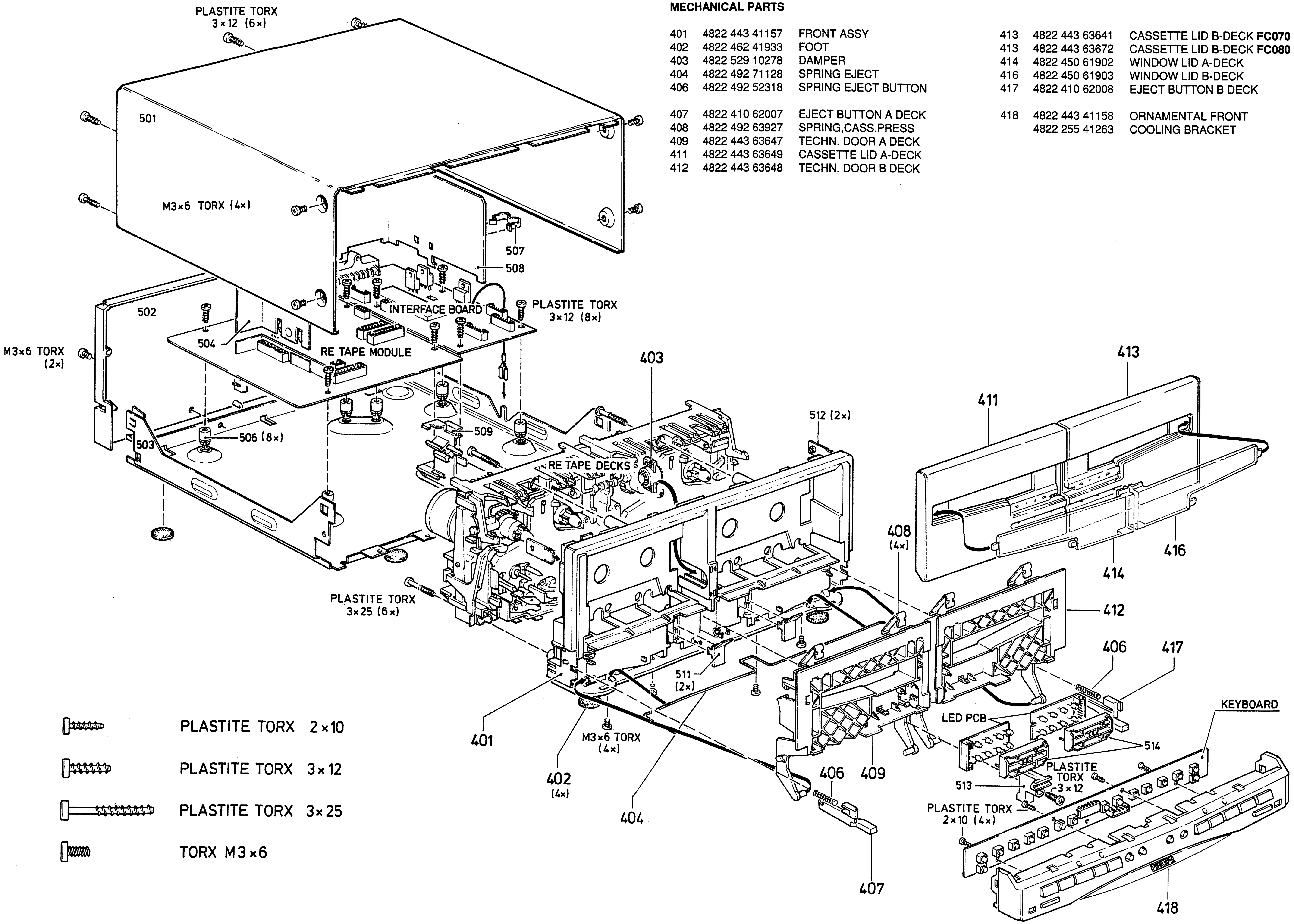


Demounting of Counter Bearing plate (51) (61)



MECHANICAL PARTS

401	4822 443 41157	FRONT ASSY
402	4822 462 41933	FOOT
403	4822 529 10278	DAMPER
404	4822 492 71128	SPRING EJECT
406	4822 492 52318	SPRING EJECT BUTTON
407	4822 410 62007	EJECT BUTTON A DECK
408	4822 492 63927	SPRING,CASS.PRESS
409	4822 443 63647	TECHN. DOOR A DECK
411	4822 443 63649	CASSETTE LID A-DECK
412	4822 443 63648	TECHN. DOOR B DECK
413	4822 443 63641	CASSETTE LID B-DECK **FC070**
413	4822 443 63672	CASSETTE LID B-DECK **FC080**
414	4822 450 61902	WINDOW LID A-DECK
416	4822 450 61903	WINDOW LID B-DECK
417	4822 410 62008	EJECT BUTTON B DECK
418	4822 443 41158	ORNAMENTAL FRONT
	4822 255 41263	COOLING BRACKET


PLASTITE TORX 3×12 (6×)
501
M3×6 TORX (4×)
507
508
502
INTERFACE BOARD
PLASTITE TORX 3×12 (8×)
M3×6 TORX (2×)
504
RE TAPE MODULE
503
506 (8×)
509
403
RE TAPE DECKS
512 (2×)
411
413
408 (4×)
416
414
412
406
417
PLASTITE TORX 3×25 (6×)
511 (2×)
LED PCB
KEYBOARD
514
401
M3×6 TORX (4×)
402 (4×)
404
406
409
513
PLASTITE TORX 3×12
PLASTITE TORX 2×10 (4×)
407
418
PLASTITE TORX 2×10
PLASTITE TORX 3×12
PLASTITE TORX 3×25
TORX M3×6

Interface Board

CAPACITORS

2401	5322 126 10181	100nF	25V	
2402	4822 124 40435	10µF	20%	50V
2403	4822 124 40435	10µF	20%	50V
2404	4822 124 40433	47µF	20%	25V
2406	4822 122 33195	100pF	10%	50V
2408	4822 124 41584	100µF	20%	10V
2412	4822 124 40239	0,47µF	20%	63V
2413	4822 122 33195	100pF	10%	50V
2414	4822 122 33195	100pF	10%	50V
2415	4822 122 33195	100pF	10%	50V
2416	4822 122 33195	100pF	10%	50V
2417	4822 122 33195	100pF	10%	50V
2418	4822 122 33195	100pF	10%	50V
2419	4822 122 33195	100pF	10%	50V
2420	4822 122 33195	100pF	10%	50V
2421	5322 126 10181	100nF	25V	
2422	5322 126 10181	100nF	25V	
2427	4822 122 33195	100pF	10%	50V

DIODES

6401	4822 130 30621	1N4148
6402	4822 130 31981	BZX79-C3V9

TRANSISTORS

7403	4822 130 40941	BC558
7404	4822 130 40938	BC548
7408	4822 130 40941	BC558

INTEGRATED CIRCUITS

7401	4822 209 80891	MC7805CT
7402	4822 209 80591	LM317T
7405	4822 209 31458	TMP87CH00N
7406	5322 209 11532	PC74HC4094P
7407	5322 209 11532	PC74HC4094P
7412	4822 209 80591	LM317T

COILS

5401	4822 157 62552	COIL 2,2µH
5402	5322 242 73697	CRYSTAL 8MHz

RESISTORS

3401	4822 050 24701	470R	5%	
3402	4822 050 13302	3k3	1%	0,4W
3403	4822 050 21001	100R	5%	SFR25
3404	4822 050 24703	47k	1%	0,6W
3405	4822 050 24703	47k	1%	0,6W
3406	4822 050 24703	47k	1%	0,6W
3407	4822 050 11803	18k	1%	0,4W
3408	4822 050 24703	47k	1%	0,6W
3409	4822 116 82996	10R	5%	0,33W
3410	4822 050 21002	1k	1%	0,6W

RESISTORS

3411	4822 050 21002	1k	1%	0,6W
3412	4822 050 22201	220R	2%	0,25W
3413	4822 050 21002	1k	1%	0,6W
3414	4822 050 21003	10k	2%	0,25W
3415	4822 050 21002	1k	1%	0,6W
3416	4822 050 21003	10k	2%	0,25W
3417	4822 050 21003	10k	2%	0,25W
3418	4822 116 82046	2k2	5%	0,2W
3419	4822 050 21003	10k	2%	0,25W
3420	4822 050 21003	10k	2%	0,25W
3421	4822 050 21003	10k	2%	0,25W
3422	4822 050 21003	10k	2%	0,25W
3424	4822 050 21002	1k	1%	0,6W
3425	4822 050 22701	270R	1%	0,6W
3426	4822 050 23301	330R	2%	0,25W
3427	4822 050 23301	330R	2%	0,25W
3428	4822 050 22701	270R	1%	0,6W
3429	4822 050 23901	390R	1%	0,6W
3430	4822 050 22701	270R	1%	0,6W
3431	4822 050 22701	270R	1%	0,6W
3432	4822 050 22701	270R	1%	0,6W
3433	4822 050 23301	330R	2%	0,25W
3434	4822 050 23301	330R	2%	0,25W
3435	4822 050 22701	270R	1%	0,6W
3436	4822 050 22701	270R	1%	0,6W
3437	4822 050 22701	270R	1%	0,6W
3438	4822 050 22701	270R	1%	0,6W
3439	4822 050 22701	270R	1%	0,6W
3440	4822 050 21002	1k	1%	0,6W
3441	4822 050 13302	3k3	1%	0,4W
3442	4822 050 11803	18k	1%	0,4W
3448	4822 050 24701	470R	5%	
3449	4822 050 24701	470R	5%	
3450	4822 050 25601	560R	1%	0,6W

Front Board

MISCELLANEOUS

1901	4822 276 13114	TACT SWITCH
1902	4822 276 13114	TACT SWITCH
1903	4822 276 13114	TACT SWITCH
1904	4822 276 13114	TACT SWITCH
1905	4822 276 13114	TACT SWITCH
1906	4822 276 13114	TACT SWITCH
1907	4822 276 13114	TACT SWITCH
1908	4822 276 13114	TACT SWITCH
1909	4822 276 13114	TACT SWITCH
1910	4822 276 13114	TACT SWITCH
1911	4822 276 13114	TACT SWITCH
1912	4822 276 13114	TACT SWITCH
1913	4822 276 13114	TACT SWITCH
1914	4822 276 13114	TACT SWITCH
1915	4822 276 13114	TACT SWITCH
1916	4822 276 13114	TACT SWITCH

DIODES

6900	4822 130 30621	1N4148
6901	4822 130 30621	1N4148
6902	4822 130 30621	1N4148
6903	4822 130 30621	1N4148
6904	4822 130 30621	1N4148
6905	4822 130 30621	1N4148
6906	4822 130 30621	1N4148
6907	4822 130 30621	1N4148
6930	4822 130 83057	TLHG4200
6931	4822 130 83057	TLHG4200
6932	4822 130 83056	TLHR4200
6933	4822 130 83056	TLHR4200
6934	4822 130 83057	TLHG4200
6935	4822 130 83057	TLHG4200
6936	4822 130 83057	TLHG4200
6937	4822 130 83057	TLHG4200
6950	4822 130 83057	TLHG4200
6951	4822 130 83057	TLHG4200
6952	4822 130 83056	TLHR4200
6953	4822 130 83056	TLHR4200
6954	4822 130 83057	TLHG4200
6955	4822 130 83057	TLHG4200
6956	4822 130 83056	TLHR4200

INTEGRATED CIRCUITS

7900	5322 209 10421	HEF4094BP

CAPACITORS

2900	4822 122 40587	100nF	20%	50V

RE-Module

MISCELLANEOUS

1661	4822 071 53151	FUSE T315mA
1661	4822 253 10146	T500mA

DIODES

6625	5322 130 31928	BAS16
6627	5322 130 31928	BAS16
6631	5322 130 34331	BAV70

TRANSISTORS

7625	4822 130 42615	BC817-40(CHIP)
7626	4822 130 42615	BC817-40(CHIP)
7627	5322 130 60123	BC807-40 (CHIP)
7628	5322 130 60123	BC807-40 (CHIP)
7629	5322 130 60123	BC807-40 (CHIP)
7630	5322 130 60123	BC807-40 (CHIP)
7631	5322 130 60123	BC807-40 (CHIP)
7632	5322 130 60123	BC807-40 (CHIP)
7633	4822 130 42615	BC817-40(CHIP)
7634	4822 130 42615	BC817-40(CHIP)
7635	4822 130 42615	BC817-40(CHIP)
7636	4822 130 42615	BC817-40(CHIP)
7637	5322 130 41982	BC848 (CHIP)
7638	5322 130 41982	BC848 (CHIP)
7639	4822 130 42615	BC817-40(CHIP)
7640	4822 130 42615	BC817-40(CHIP)
7641	5322 130 41983	BC858B(CHIP)
7642	5322 130 41983	BC858B(CHIP)
7643	5322 130 41982	BC848 (CHIP)
7644	5322 130 41982	BC848 (CHIP)
7645	5322 130 41982	BC848 (CHIP)
7646	5322 130 41982	BC848 (CHIP)
7647	5322 130 61569	BC868
7648	5322 130 61569	BC868
7649	4822 130 42615	BC817-40(CHIP)
7651	4822 130 42615	BC817-40(CHIP)
7652	4822 130 42615	BC817-40(CHIP)
7654	5322 130 41982	BC848 (CHIP)
7655	5322 130 41982	BC848 (CHIP)
7659	5322 130 41982	BC848 (CHIP)
7660	5322 130 41982	BC848 (CHIP)
7661	5322 130 41982	BC848 (CHIP)
7663	5322 130 41982	BC848 (CHIP)
7664	5322 130 41982	BC848 (CHIP)
7665	5322 130 41982	BC848 (CHIP)
7666	5322 130 41982	BC848 (CHIP)

INTEGRATED CIRCUITS

7701	4822 209 31135	HEF4016BT
7702	4822 209 31135	HEF4016BT
7703	4822 209 31135	HEF4016BT
7704	4822 209 83274	NJM4560D
7705	4822 209 73994	NJM3415D
7706	4822 209 62372	TDA1602A/N3
7708	5322 209 12171	PC74HC4094T

INTEGRATED CIRCUITS

7709	4822 209 31133	COP880C
7710	4822 209 72874	UPC1297CA
7711	4822 209 31134	CXA1331S
7720	4822 209 31137	HEF7069UBT
7721	4822 209 31137	HEF7069UBT

COILS

5625	4822 156 20946	OSC.COIL 100kHz
5626	4822 157 63864	COIL 80kHz
5627	4822 157 63864	COIL 80kHz
5628	4822 156 20811	COIL 36µH
5629	4822 156 20811	COIL 36µH
5630	4822 156 20811	COIL 36µH
5631	4822 156 20811	COIL 36µH
5632	4822 242 73768	MPX-FILTER
5633	4822 242 73768	MPX-FILTER
5634	4822 242 73557	CERAMIC RES. 8,46MHz

RESISTORS

1626	4822 100 11869	TRIMPOT 20k LIN.		
1627	4822 100 11869	TRIMPOT 20k LIN.		
1628	4822 100 11869	TRIMPOT 20k LIN.		
1630	4822 100 11869	TRIMPOT 20k LIN.		
1631	4822 100 11869	TRIMPOT 20k LIN.		
1632	4822 100 11869	TRIMPOT 20k LIN.		
1633	4822 100 11676	10k LIN.		
1634	4822 100 11676	10k LIN.		
1635	4822 100 11869	TRIMPOT 20k LIN.		
1636	4822 100 11869	TRIMPOT 20k LIN.		
3644	5322 116 55012	47R	5%	2,5W
3645	5322 116 55012	47R	5%	2,5W
3679	4822 116 51455	6R8	10%	2,5W
3820	4822 116 40227	PTC 4,6R 25%		

CHIP RESISTORS

3501	4822 051 10008	CHIP JUMPER 1206
3502	4822 051 20008	CHIP JUMPER 0805
3503	4822 051 20008	CHIP JUMPER 0805
3504	4822 051 10008	CHIP JUMPER 1206
3505	4822 051 10008	CHIP JUMPER 1206
3506	4822 051 20008	CHIP JUMPER 0805
3507	4822 051 20008	CHIP JUMPER 0805
3508	4822 051 10008	CHIP JUMPER 1206
3509	4822 051 10008	CHIP JUMPER 1206
3513	4822 051 10008	CHIP JUMPER 1206
3515	4822 051 10008	CHIP JUMPER 1206
3516	4822 051 20008	CHIP JUMPER 0805
3517	4822 051 10008	CHIP JUMPER 1206
3520	4822 051 10008	CHIP JUMPER 1206
3525	4822 051 20008	CHIP JUMPER 0805
3527	4822 051 20008	CHIP JUMPER 0805
3528	4822 051 10008	CHIP JUMPER 1206
3529	4822 051 20008	CHIP JUMPER 0805
3530	4822 051 10008	CHIP JUMPER 1206
3531	4822 051 10008	CHIP JUMPER 1206
3532	4822 051 10008	CHIP JUMPER 1206
3533	4822 051 10008	CHIP JUMPER 1206

CHIP RESISTORS

3534	4822 051 10008	CHIP JUMPER 1206		
3535	4822 051 10008	CHIP JUMPER 1206		
3536	4822 051 10008	CHIP JUMPER 1206		
3537	4822 051 10008	CHIP JUMPER 1206		
3538	4822 051 10008	CHIP JUMPER 1206		
3539	4822 051 10008	CHIP JUMPER 1206		
3540	4822 051 10008	CHIP JUMPER 1206		
3542	4822 051 10008	CHIP JUMPER 1206		
3543	4822 051 10008	CHIP JUMPER 1206		
3544	4822 051 10008	CHIP JUMPER 1206		
3545	4822 051 10008	CHIP JUMPER 1206		
3546	4822 051 10008	CHIP JUMPER 1206		
3547	4822 051 10008	CHIP JUMPER 1206		
3548	4822 051 10008	CHIP JUMPER 1206		
3549	4822 051 10008	CHIP JUMPER 1206		
3550	4822 051 10008	CHIP JUMPER 1206		
3551	4822 051 10008	CHIP JUMPER 1206		
3552	4822 051 10008	CHIP JUMPER 1206		
3553	4822 051 10008	CHIP JUMPER 1206		
3554	4822 051 10008	CHIP JUMPER 1206		
3555	4822 051 10008	CHIP JUMPER 1206		
3556	4822 051 10008	CHIP JUMPER 1206		
3557	4822 051 10008	CHIP JUMPER 1206		
3558	4822 051 10008	CHIP JUMPER 1206		
3559	4822 051 20008	CHIP JUMPER 0805		
3560	4822 051 10008	CHIP JUMPER 1206		
3561	4822 051 20008	CHIP JUMPER 0805		
3562	4822 051 10008	CHIP JUMPER 1206		
3563	4822 051 10008	CHIP JUMPER 1206		
3564	4822 051 10008	CHIP JUMPER 1206		
3565	4822 051 10008	CHIP JUMPER 1206		
3566	4822 051 10008	CHIP JUMPER 1206		
3567	4822 051 20008	CHIP JUMPER 0805		
3568	4822 051 20008	CHIP JUMPER 0805		
3570	4822 051 10008	CHIP JUMPER 1206		
3571	4822 051 10008	CHIP JUMPER 1206		
3572	4822 051 20008	CHIP JUMPER 0805		
3573	4822 051 20008	CHIP JUMPER 0805		
3574	4822 051 10008	CHIP JUMPER 1206		
3575	4822 051 10008	CHIP JUMPER 1206		
3576	4822 051 10008	CHIP JUMPER 1206		
3578	4822 051 20008	CHIP JUMPER 0805		
3579	4822 051 20008	CHIP JUMPER 0805		
3580	4822 051 10008	CHIP JUMPER 1206		
3581	4822 051 10008	CHIP JUMPER 1206		
3589	4822 051 10008	CHIP JUMPER 1206		
3590	4822 051 10008	CHIP JUMPER 1206		
3592	4822 051 10008	CHIP JUMPER 1206		
3593	4822 051 20008	CHIP JUMPER 0805		
3594	4822 051 20008	CHIP JUMPER 0805		
3595	4822 051 10008	CHIP JUMPER 1206		
3596	4822 051 20008	CHIP JUMPER 0805		
3600	4822 051 20473	47k	5%	0,1W
3601	4822 051 20103	10k	5%	0,1W
3602	4822 051 20104	100k	5%	0,1W

CHIP RESISTORS

3603	4822 051 20104	100k	5%	0,1W
3604	4822 051 20223	22k	5%	0,1W
3605	4822 051 20223	22k	5%	0,1W
3606	4822 051 10102	1k	2%	0,25W
3607	4822 051 20223	22k	5%	0,1W
3609	4822 051 20223	22k	5%	0,1W
3610	4822 051 20103	10k	5%	0,1W
3611	4822 051 20103	10k	5%	0,1W
3616	4822 051 20273	27k	5%	0,1W
3617	4822 051 20681	680R	5%	0,1W
3618	4822 051 20681	680R	5%	0,1W
3619	4822 051 20104	100k	5%	0,1W
3620	4822 051 20472	4k7	5%	0,1W
3621	4822 051 20332	3k3	5%	0,1W
3623	4822 051 20472	4k7	5%	0,1W
3624	4822 051 20472	4k7	5%	0,1W
3625	4822 051 20223	22k	5%	0,1W
3626	4822 051 20472	4k7	5%	0,1W
3628	4822 051 20471	470R	5%	0,1W
3629	4822 051 20223	22k	5%	0,1W
3630	4822 051 20159	15R	5%	0,1W
3631	4822 051 20159	15R	5%	0,1W
3635	4822 051 20471	470R	5%	0,1W
3636	4822 051 20222	2k2	5%	0,1W
3637	4822 051 20222	2k2	5%	0,1W
3638	4822 051 20471	470R	5%	0,1W
3639	4822 051 20471	470R	5%	0,1W
3640	4822 051 20471	470R	5%	0,1W
3641	4822 051 20471	470R	5%	0,1W
3642	4822 051 20222	2k2	5%	0,1W
3643	4822 051 20222	2k2	5%	0,1W
3647	4822 051 20472	4k7	5%	0,1W
3648	4822 051 10102	1k	2%	0,25W
3649	4822 051 10102	1k	2%	0,25W
3650	4822 051 20279	27R	5%	0,1W
3651	4822 051 20279	27R	5%	0,1W
3652	4822 051 20105	1M	5%	0,1W
3653	4822 051 20105	1M	5%	0,1W
3654	4822 051 20103	10k	5%	0,1W
3655	4822 051 20103	10k	5%	0,1W
3656	4822 051 20472	4k7	5%	0,1W
3657	4822 051 20472	4k7	5%	0,1W
3658	4822 051 20471	470R	5%	0,1W
3659	4822 051 20471	470R	5%	0,1W
3660	4822 051 20103	10k	5%	0,1W
3664	4822 051 20225	2M2	5%	0,1W
3665	4822 051 20225	2M2	5%	0,1W
3666	4822 051 20221	220R	5%	0,1W
3667	4822 051 20221	220R	5%	0,1W
3668	4822 051 20223	22k	5%	0,1W
3669	4822 051 20223	22k	5%	0,1W
3670	4822 051 20223	22k	5%	0,1W
3671	4822 051 20223	22k	5%	0,1W
3672	4822 051 20223	22k	5%	0,1W
3673	4822 051 20105	1M	5%	0,1W

CHIP RESISTORS

3674	4822 051 10102	1k	2%	0,25W
3675	4822 051 10102	1k	2%	0,25W
3676	4822 051 20123	12k	2%	0,1W
3677	4822 051 20223	22k	5%	0,1W
3678	4822 051 20473	47k	5%	0,1W
3680	4822 051 20473	47k	5%	0,1W
3681	4822 051 20109	10R	5%	0,1W
3682	4822 051 20105	1M	5%	0,1W
3684	4822 051 20472	4k7	5%	0,1W
3685	4822 051 20183	18k	5%	0,1W
3686	4822 051 20183	18k	5%	0,1W
3687	4822 051 10102	1k	2%	0,25W
3688	4822 051 10102	1k	2%	0,25W
3689	4822 051 20101	100R	5%	0,1W
3690	4822 051 20101	100R	5%	0,1W
3691	4822 051 10102	1k	2%	0,25W
3692	4822 051 10102	1k	2%	0,25W
3693	4822 051 10102	1k	2%	0,25W
3694	4822 051 10102	1k	2%	0,25W
3695	4822 051 20153	15k	5%	0,1W
3696	4822 051 20822	8k2	5%	0,1W
3697	4822 051 20103	10k	5%	0,1W
3698	4822 051 20153	15k	5%	0,1W
3699	4822 051 20103	10k	5%	0,1W
3701	4822 051 20154	150k	5%	0,1W
3702	4822 051 20154	150k	5%	0,1W
3703	4822 051 20103	10k	5%	0,1W
3704	4822 051 20103	10k	5%	0,1W
3705	4822 051 20223	22k	5%	0,1W
3706	4822 051 20103	10k	5%	0,1W
3707	4822 051 20103	10k	5%	0,1W
3708	4822 051 20103	10k	5%	0,1W
3709	4822 051 20103	10k	5%	0,1W
3710	4822 051 20103	10k	5%	0,1W
3711	4822 051 20182	1k8	5%	0,1W
3712	4822 051 20182	1k8	5%	0,1W
3713	4822 051 20562	5k6	5%	0,1W
3714	4822 051 20562	5k6	5%	0,1W
3715	4822 051 20392	3k9	5%	0,1W
3716	4822 051 20392	3k9	5%	0,1W
3717	4822 051 20822	8k2	5%	0,1W
3718	4822 051 20223	22k	5%	0,1W
3719	4822 051 20823	82k	5%	0,1W
3720	4822 051 20823	82k	5%	0,1W
3721	4822 051 20184	180k	5%	0,1W
3722	4822 051 20184	180k	5%	0,1W
3723	4822 051 20474	470k	5%	0,1W
3724	4822 051 20474	470k	5%	0,1W
3725	4822 051 20563	56k	5%	0,1W
3726	4822 051 20563	56k	5%	0,1W
3727	4822 051 20103	10k	5%	0,1W
3728	4822 051 20109	10R	5%	0,1W
3729	4822 051 20104	100k	5%	0,1W
3730	4822 051 20104	100k	5%	0,1W
3731	4822 051 10102	1k	2%	0,25W

CHIP RESISTORS

3732	4822 051 10102	1k	2%	0,25W
3733	4822 051 20153	15k	5%	0,1W
3734	4822 051 20153	15k	5%	0,1W
3735	4822 051 20822	8k2	5%	0,1W
3736	4822 051 20822	8k2	5%	0,1W
3737	4822 051 20103	10k	5%	0,1W
3738	4822 051 20222	2k2	5%	0,1W
3739	4822 051 10102	1k	2%	0,25W
3740	4822 051 10102	1k	2%	0,25W
3741	4822 051 20332	3k3	5%	0,1W
3742	4822 051 10102	1k	2%	0,25W
3743	4822 051 20332	3k3	5%	0,1W
3744	4822 051 20332	3k3	5%	0,1W
3745	4822 051 20562	5k6	5%	0,1W
3746	4822 051 20562	5k6	5%	0,1W
3747	4822 051 20561	560R	5%	0,1W
3748	4822 051 20561	560R	5%	0,1W
3749	4822 051 20273	27k	5%	0,1W
3750	4822 051 20223	22k	5%	0,1W
3751	4822 051 20243	24k	2%	0,1W
3752	4822 051 20243	24k	2%	0,1W
3753	4822 051 20008	CHIP JUMPER 0805		
3754	4822 051 20109	10R	5%	0,1W
3755	4822 051 20109	10R	5%	0,1W
3756	4822 051 20222	2k2	5%	0,1W
3757	4822 051 20222	2k2	5%	0,1W
3758	4822 051 20471	470R	5%	0,1W
3759	4822 051 20471	470R	5%	0,1W
3761	4822 051 20103	10k	5%	0,1W
3762	4822 051 20103	10k	5%	0,1W
3764	4822 051 20479	47R	5%	0,1W
3765	4822 051 20223	22k	5%	0,1W
3766	4822 051 20223	22k	5%	0,1W
3767	4822 051 20222	2k2	5%	0,1W
3768	4822 051 20222	2k2	5%	0,1W
3769	4822 051 20222	2k2	5%	0,1W
3771	4822 051 20105	1M	5%	0,1W
3772	4822 051 20223	22k	5%	0,1W
3773	4822 051 20563	56k	5%	0,1W
3774	4822 051 20563	56k	5%	0,1W
3775	4822 051 20273	27k	5%	0,1W
3776	4822 051 20273	27k	5%	0,1W
3777	4822 051 20104	100k	5%	0,1W
3778	4822 051 20104	100k	5%	0,1W
3779	4822 051 20271	270R	5%	0,1W
3780	4822 051 20271	270R	5%	0,1W
3781	4822 051 20271	270R	5%	0,1W
3782	4822 051 20271	270R	5%	0,1W
3783	4822 051 20479	47R	5%	0,1W
3784	4822 051 20479	47R	5%	0,1W
3786	4822 051 20103	10k	5%	0,1W
3789	4822 051 20106	10M	5%	0,1W
3790	4822 051 20272	2k7	5%	0,1W
3791	4822 051 20104	100k	5%	0,1W
3792	4822 051 20272	2k7	5%	0,1W

CHIP RESISTORS

3793	4822 051 20101	100R	5%	0,1W
3794	4822 051 20154	150k	5%	0,1W
3796	4822 051 20153	15k	5%	0,1W
3797	4822 051 20153	15k	5%	0,1W
3798	4822 051 20154	150k	5%	0,1W
3799	4822 051 20333	33k	5%	0,1W
3800	4822 051 20109	10R	5%	0,1W
3801	4822 051 20823	82k	5%	0,1W
3802	4822 051 20823	82k	5%	0,1W
3803	4822 051 20104	100k	5%	0,1W
3804	4822 051 20104	100k	5%	0,1W
3811	4822 051 10102	1k	2%	0,25W
3814	4822 051 20472	4k7	5%	0,1W
3815	4822 051 20472	4k7	5%	0,1W
3816	4822 051 20471	470R	5%	0,1W
3817	4822 051 20471	470R	5%	0,1W
3821	4822 051 20222	2k2	5%	0,1W
3822	4822 051 20222	2k2	5%	0,1W
3823	4822 051 20473	47k	5%	0,1W
3824	4822 051 20159	15R	5%	0,1W
3826	4822 051 20332	3k3	5%	0,1W
3827	4822 051 20332	3k3	5%	0,1W
3900	4822 051 20103	10k	5%	0,1W
3901	4822 051 20103	10k	5%	0,1W
3902	4822 051 20103	10k	5%	0,1W
3903	4822 051 20103	10k	5%	0,1W

CAPACITORS

2620	4822 124 40177	47µF	20%	10V
2634	4822 124 40435	10µF	20%	50V
2637	4822 121 51598	2,2nF	5%	400V
2646	4822 121 51362	15nF	5%	100V
2647	4822 121 51362	15nF	5%	100V
2655	4822 124 22263	220µF	20%	25V
2656	4822 124 40177	47µF	20%	10V
2657	4822 124 40433	47µF	20%	25V
2659	4822 124 41584	100µF	20%	10V
2660	4822 124 40177	47µF	20%	10V
2675	4822 124 40246	4,7uµF	20%	63V
2676	4822 124 40246	4,7µF	20%	63V
2677	4822 124 40246	4,7µF	20%	63V
2678	4822 124 40246	4,7µF	20%	63V
2683	4822 124 40433	47µF	20%	25V
2688	4822 124 40435	10µF	20%	50V
2713	4822 124 40246	4,7µF	20%	63V
2714	4822 124 40246	4,7µF	20%	63V
2715	4822 124 40246	4,7µF	20%	63V
2716	4822 124 40246	4,7µF	20%	63V
2721	5322 121 42661	330nF	5%	63V
2722	5322 121 42661	330nF	5%	63V
2726	4822 124 41525	100µF	20%	25V
2727	4822 124 40433	47µF	20%	25V
2733	4822 121 51412	560nF	5%	63V

CAPACITORS

2734	4822 121 51412	560nF	5%	63V
2735	4822 124 40242	1µF	20%	63V
2736	4822 124 40242	1µF	20%	63V
2737	4822 124 40246	4,7µF	20%	63V
2738	4822 124 40246	4,7µF	20%	63V
2739	4822 124 40246	4,7µF	20%	63V
2740	4822 124 40246	4,7µF	20%	63V
2745	4822 124 40239	0,47µF	20%	63V
2746	4822 124 40239	0,47µF	20%	63V
2747	5322 122 33446	3,3nF	10%	63V
2748	5322 122 33446	3,3nF	10%	63V
2754	4822 124 40196	220µF	20%	16V
2757	4822 124 22412	2200µF	20%	16V
2758	4822 124 40246	4,7µF	20%	63V
2759	4822 124 40246	4,7µF	20%	63V
2760	4822 124 40433	47µF	20%	25V
2762	4822 122 31746	1nF	5%	50V

CHIP CAPACITORS

2619	4822 126 12103	680nF	20%	50V
2621	4822 122 33064	330nF	20%	25V
2622	4822 126 10002	100nF	20%	50V
2623	4822 126 10002	100nF	20%	50V
2624	4822 122 31947	100nF	20%	50V
2625	4822 126 10745	150nF	20%	50V
2626	4822 126 10745	150nF	0%	50V
2627	4822 126 12103	680nF	20%	50V
2628	4822 126 12103	680nF	20%	50V
2630	5322 122 34123	1nF	10%	50V
2633	5322 122 32654	22nF	10%	63V
2635	5322 122 34123	1nF	10%	50V
2636	5322 122 32654	22nF	10%	63V
2639	5322 122 32654	22nF	10%	63V
2640	5322 122 32654	22nF	10%	63V
2641	4822 126 10002	100nF	20%	50V
2642	4822 126 10002	100nF	20%	50V
2643	4822 122 31767	150pF	5%	50V
2644	5322 122 32654	22nF	10%	63V
2645	4822 122 32575	220pF	10%	500V
2648	4822 122 32575	220pF	10%	500V
2649	4822 122 33177	10nF	20%	50V
2650	4822 126 10326	180pF	5%	
2651	4822 126 10326	180pF	5%	
2652	4822 122 33216	270pF	5%	50V
2653	4822 122 33216	270pF	5%	50V
2654	4822 122 31727	470pF	5%	63V
2658	5322 122 32654	22nF	10%	63V
2661	4822 122 32575	220pF	10%	500V
2662	4822 122 32575	220pF	10%	500V
2663	5322 122 32268	470pF	10%	50V
2664	5322 122 32268	470pF	10%	50V
2665	5322 122 33538	150pF	5%	63V
2666	5322 122 33538	150pF	5%	63V
2667	5322 122 32268	470pF	10%	50V

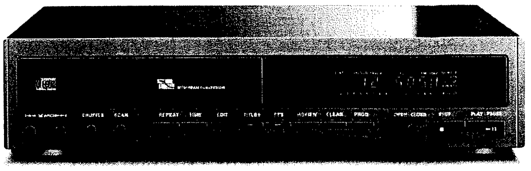
CHIP CAPACITORS

2668	5322 122 32268	470pF	10%	50V
2669	5322 122 32531	100pF	5%	50V
2670	5322 122 32531	100pF	5%	50V
2671	4822 126 12102	330nF	20%	50V
2672	4822 126 12102	330nF	20%	50V
2673	4822 126 12101	39nF	10%	50V
2674	4822 126 12101	39nF	10%	50V
2679	5322 122 32268	470pF	10%	50V
2680	5322 122 32268	470pF	10%	50V
2681	5322 122 32268	470pF	10%	50V
2682	5322 122 32268	470pF	10%	50V
2685	5322 122 34123	1nF	10%	50V
2686	5322 122 34123	1nF	10%	50V
2690	4822 126 10002	100nF	20%	50V
2692	5322 126 10223	4,7nF	10%	63V
2694	4822 122 33218	820pF	10%	50V
2695	4822 122 33515	82pF	5%	50V
2696	4822 122 33515	82pF	5%	50V
2697	4822 126 10326	180pF	5%	
2698	4822 126 10326	180pF	5%	
2699	5322 122 32654	22nF	10%	63V
2700	5322 122 32654	22nF	10%	63V
2701	4822 126 10326	180pF	5%	
2702	4822 126 10326	180pF	5%	
2703	4822 122 33216	270pF	5%	50V
2704	4822 122 33216	270pF	5%	50V
2705	5322 122 32448	10pF	5%	50V
2706	5322 122 32448	10pF	5%	50V
2707	4822 122 33893	18nF	10%	63V
2708	4822 122 33893	18nF	10%	63V
2709	5322 122 32531	100pF	5%	50V
2710	5322 122 32531	100pF	5%	50V
2717	5322 122 32268	470pF	10%	50V
2718	4822 122 31727	470pF	5%	63V
2719	5322 122 32268	470pF	10%	50V
2720	5322 122 32268	470pF	10%	50V
2724	4822 126 10002	100nF	20%	50V
2725	4822 126 10002	100nF	20%	50V
2728	4822 122 33496	100nF	10%	63V
2729	4822 122 32999	2,2nF	5%	
2730	4822 122 32999	2,2nF	5%	
2731	4822 122 32999	2,2nF	5%	
2732	4822 122 32999	2,2nF	5%	
2741	5322 122 32531	100pF	5%	50V
2742	5322 122 32531	100pF	5%	50V
2743	4822 122 33174	1,5nF	20%	50V
2744	4822 122 33174	1,5nF	20%	50V
2751	5322 122 32654	22nF	10%	63V
2752	5322 122 32654	22nF	10%	63V
2753	4822 126 10002	100nF	20%	50V
2755	5322 122 32654	22nF	10%	63V
2756	4822 126 10002	100nF	20%	50V
2761	4822 122 33496	100nF	10%	63V
2763	4822 126 10002	100nF	20%	50V
2764	4822 122 33174	1,5nF	20%	50V

V14354

Compact disc player CD070/00B
CD080/00B

Service
Service
Service



Service Manual

TABLE OF CONTENTS **PAGE**

1. Technical specifications 2
2. Controls and connections 3
3. Warnings 4
4. Dismantling instructions 5
5. Servicing hints 9
6. Block diagram 11
7. Wiring diagram 13

8. Circuit diagrams and printed boards

8.1. Interconnection board 14
8.2. Control & Display 15
8.3. Servo & Decoder circuit diagram 18
8.4. Servo & Decoder panel solder side 21
8.7. Servo & Decoder panel component side 23
9. Start up procedure 25
10. Faultfinding guide 26
11. Service test program 27
12. Electrical measurements 29
13. Loader 30
14. Mechanical Partslist 32
15. Exploded view 33
16. Electrical partslist 35

Published by Consumer Electronics Printed in The Netherlands

©Copyright reserved Subject to modification

GB 4822 725 24012

PHILIPS

PCS 60 228

TECHNICAL SPECIFICATIONS

General

1.Supply voltage DC : +10V min. +8,5V max. +15,5V
DC : -10V min. -8,5V max. -15,5V
Vkk : -32V min. -30V max. -36V
AC : 4,5V ± 0,4V
4.Power consumption +10V play mode : 300mA, peak 600mA
-10V play mode : 150mA, peak 300mA
-10V open/close : 200mA, peak 500mA
Vkk : max.40mA
AC : max.150mA

Audio performance

1.Number of channels : 2
2.Output voltage : 1,5 Vrms ± 3dB
3.Unbalance left-right : max. ± 1,2dB at 1 kHz
4.Output resistance : 1 kΩ
5.Amplitude linearity : +2dB -3dB from 20 Hz to 20 kHz
6.Phase non-linearity : max. ±5,0° from 20 Hz to 20 kHz
7.Signal to noise ratio : min. 80dB from 20 Hz to 20 kHz
8.Dynamic range : min. 70dB from 20 Hz to 20 kHz
: min. 80db at 1kHz
9.Total harmonic distortion + noise : min. 60dB from 20Hz to 20kHz
: min. 70db at 1kHz
10.Out-band atenuation : min. 35db above 40kHz
11.Channel separation : min. 70dB from 20Hz to 20kHz
: min. 80dB at 1kHz
12.Muting during random access : min. 80dB from 20 Hz to 20kHz
13.Automatic switched de-emphasis(simple) with time constants 15/50 µs

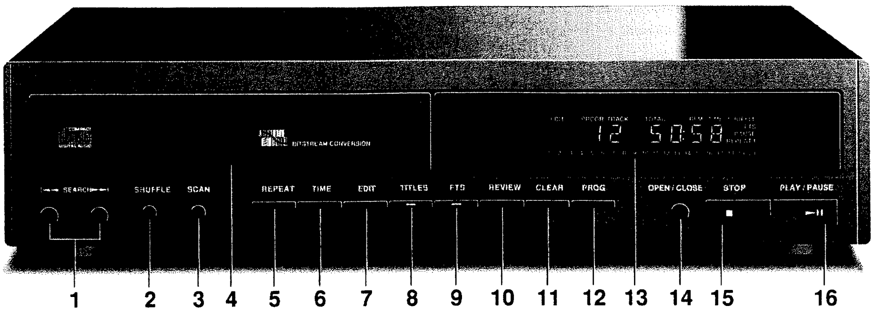
Dimensions and weight

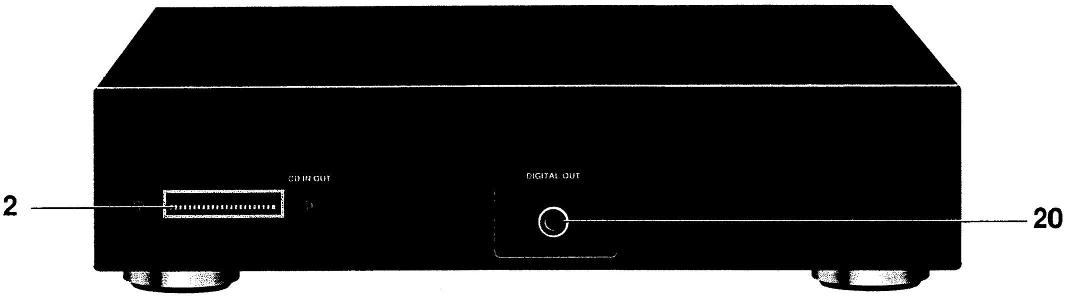
1.Apparatus tray closed : WxDxH 260 x 255 x 57,5 mm
2.Weight : 1,6 Kg

Optical read-out system

1.Laser type : Semiconductor AlGaAs
2.Wavelength : 780 nm ± 20 nm
3.Light output (c.w.) : max. 0,5 mW

CONTROLS AND CONNECTIONS


SEARCH
SHUFFLE
SCAN
BITSTREAM CONVERSION
REPEAT
TIME
EDIT
TITLES
FTS
REVIEW
CLEAR
PROG
OPEN/CLOSE
STOP
PLAY/PAUSE
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16


2
CD IN OUT
DIGITAL OUT
20

CONTROLS

Indication on Player	Indication in diagram
1. **<< SEARCH >>**	1422 1423
2. **SHUFFLE**	1424
3. **SCAN**	1425
4. **CD compartment**	
5. **REPEAT**	1426
6. **TIME**	1427
7. **EDIT**	1428
8. **TITLES**	1429(CD080) 1437(CD070)
9. **FTS**	1430(CD080)
10. **REVIEW**	1431
11. **CLEAR**	1432
12. **PROG**(ram)	1433
13. **display**	7400
14. **OPEN/CLOSE**	1434
15. **STOP**	1435
16. **PLAY/PAUSE**	1436

CONNECTIONS

Indication on Player	Indication in diagram
2. **CD IN/OUT**	1510
20. **DIGITAL OUT**	1250

GB WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

F ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

ESD

D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).
Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern.
Sorgen sie dafür, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

NL WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

I AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

NL

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambiago identici a quelli specificati.

F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

S Varning!

Osynlig laserstrålning när apparaten är öppnad och spärrenär urkopplad.
Betrakta ej strålen.

SF Varo!

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle.Alä katso säteeseen!

DK Adversel!

Usynlig laserstraling ved åbning. Undgå unsaettelse for straling.

DANGER
Invisible laser radiation when open.
Avoid direct exposure to beam

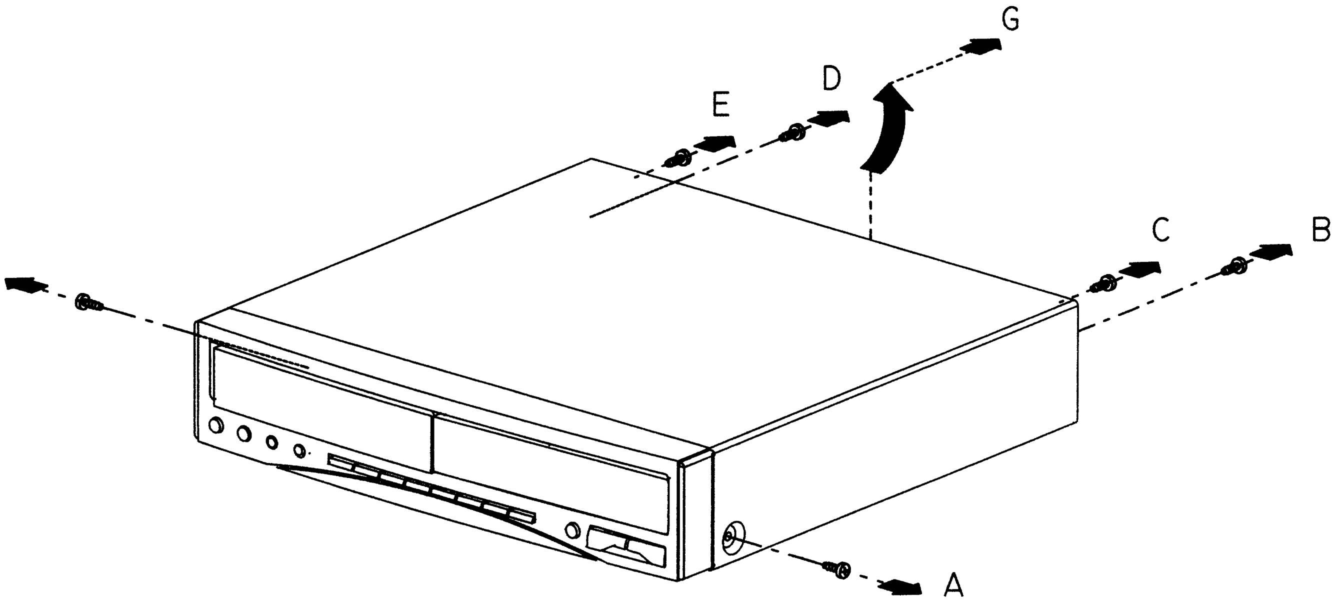
CAUTION
Invisible laser radiation when open.
Avoid exposure to beam.

CLASS 1
LASER PRODUCT
3122 110 03420

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne"

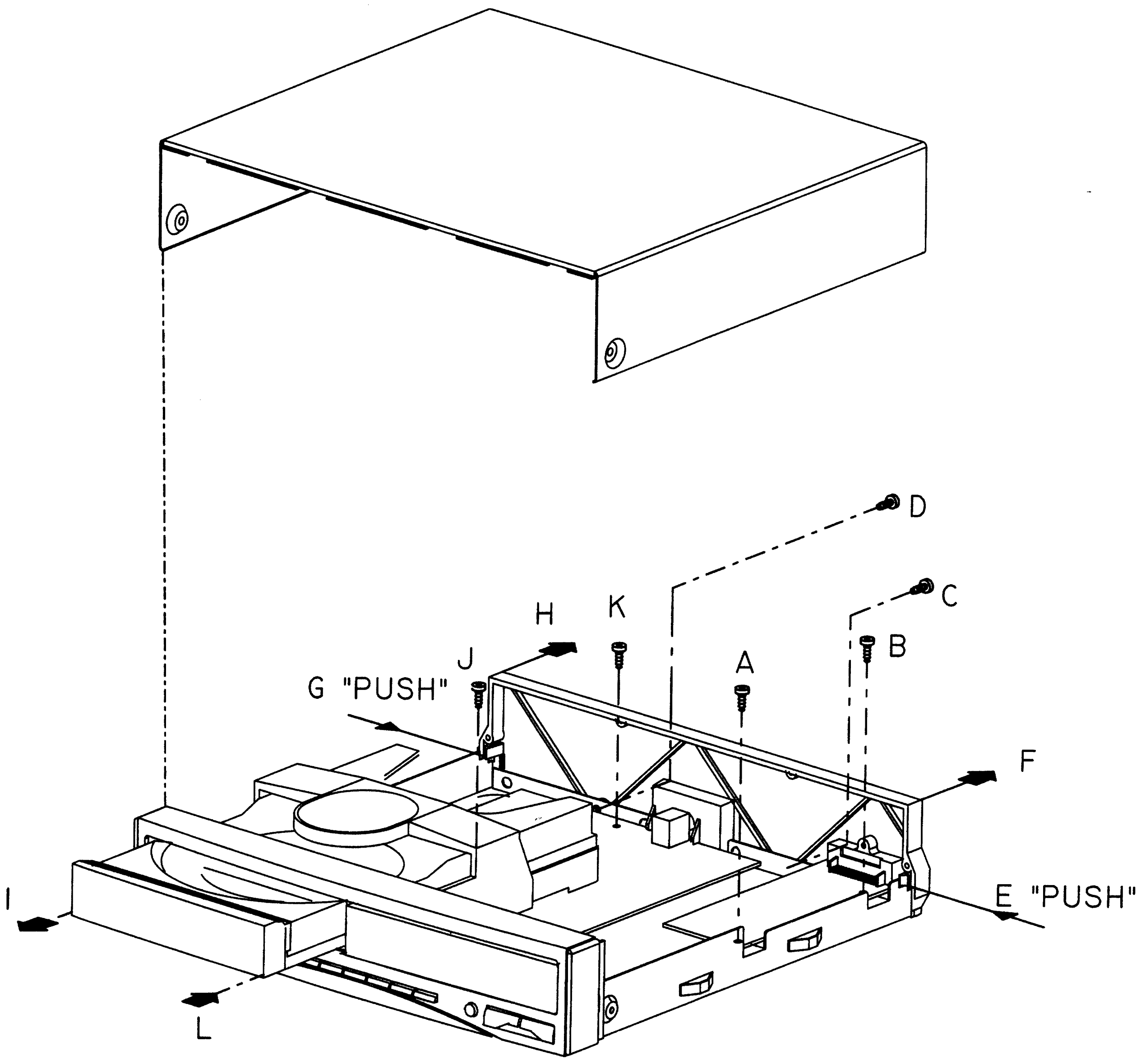
DISMANTLING INSTRUCTIONS

DEMOUNTING OF COVER



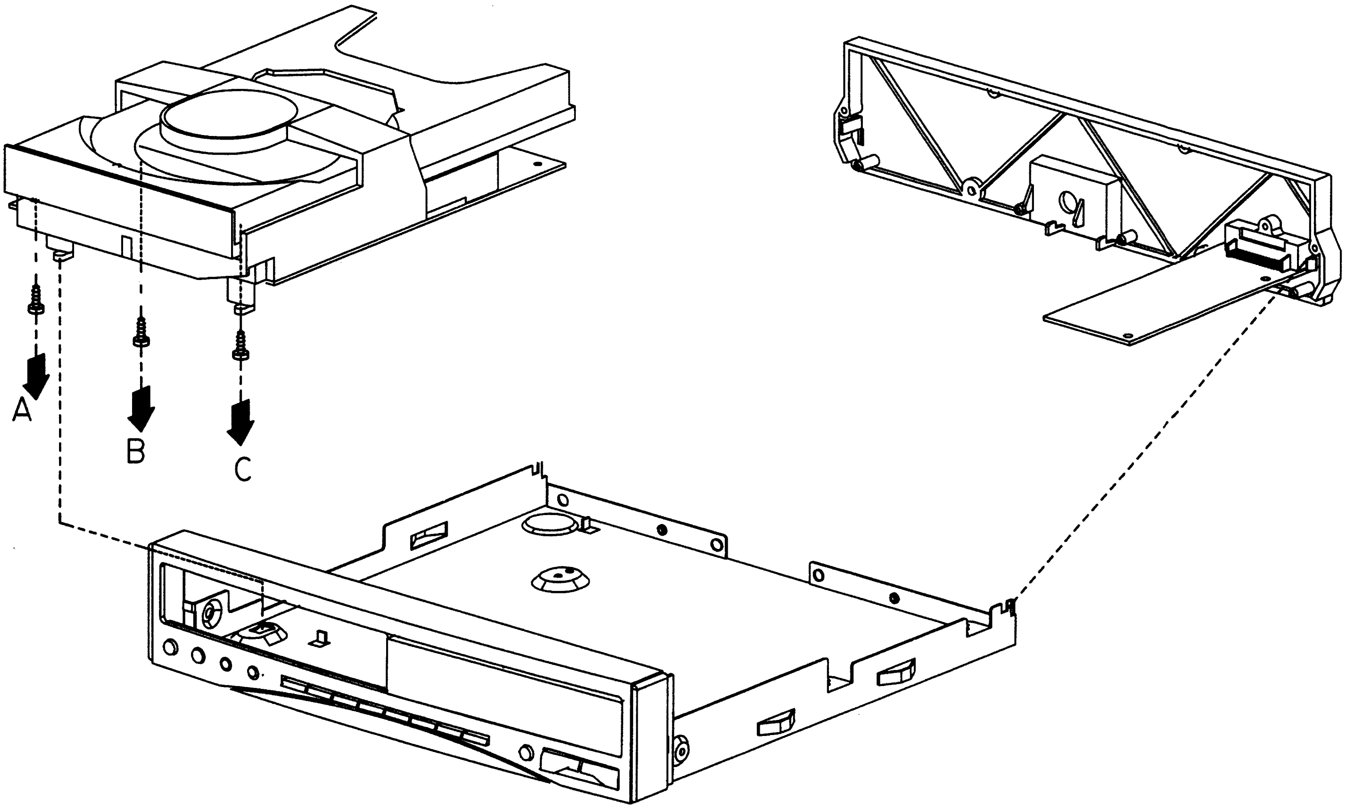
HAS.1074

DEMOUNTING BACKPLATE AND LOADER


D
C
H
K
B
J
A
G "PUSH"
F
I
E "PUSH"
L

HAS.I075

DEMOUNTING OF SERVO DECODER PANEL



HAS.1076

SERVICE POSITION OF LOADER

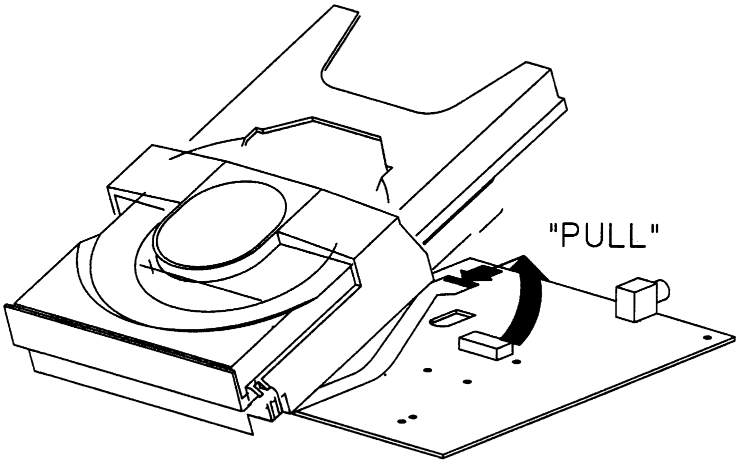
1. Demount backplate (drawing HAS1075 A -> H).
2. Demount loader (drawing HAS1075 J -> M).

Put loader on left side to execute measurements on Servo panel.

EXCHANGING CDM

1. Demount backplate.
2. Demount loader.
3. Demount Servo panel (drawing HAS1076 A-C).
4. Disconnect connectors and flex (HAS1077).
5. Remove tray and disc hold down (see also exploded view of loader on page 30)
6. Demount subchassis.
7. Exchange CDM, pay attention to the wiring.

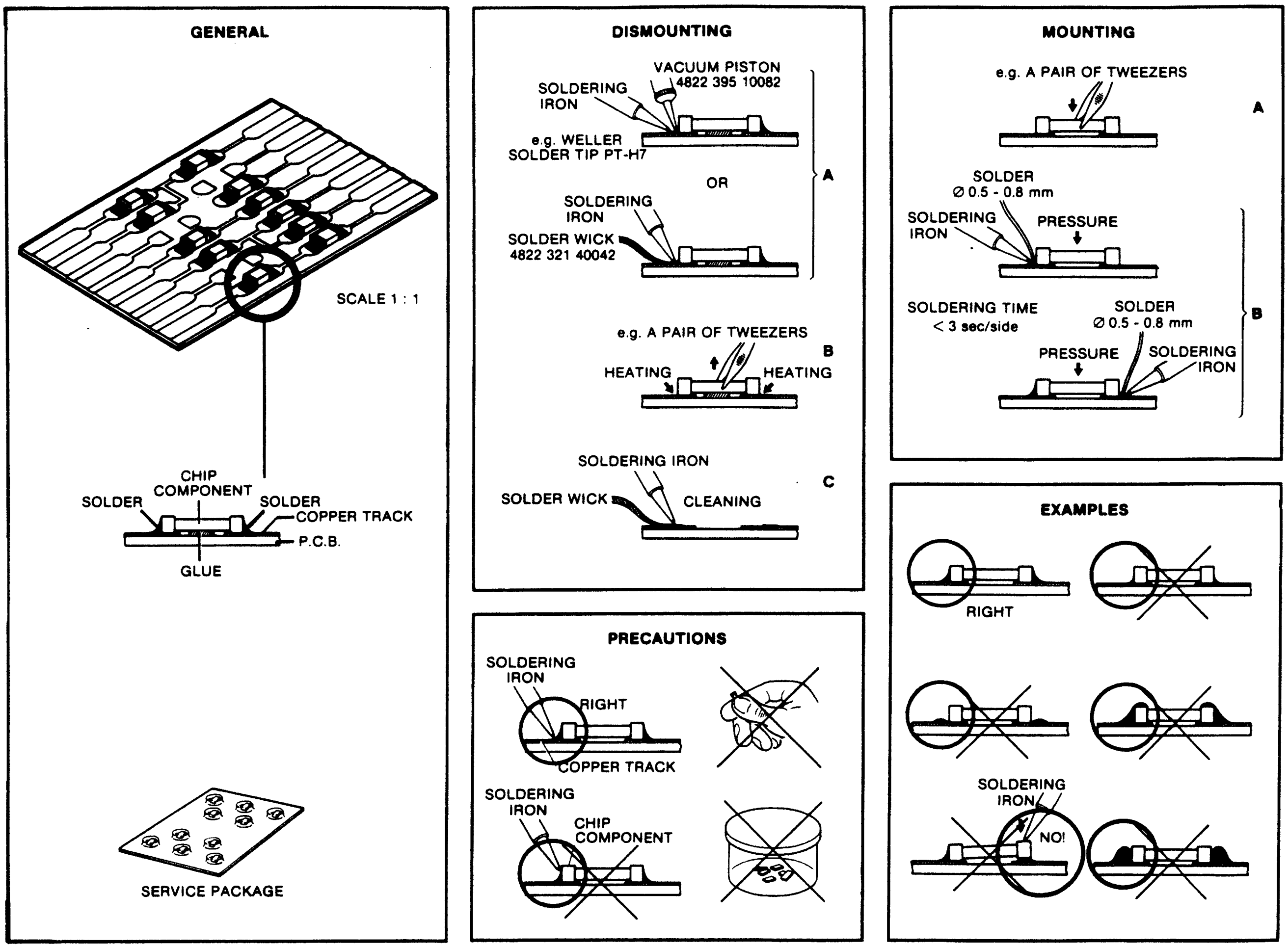
Remark: Before reconnecting the flex, put sledge of CDM in the outer position.



HAS.1077

SERVICING HINTS

In the set chip components have been applied. For disassembly and assembly of chip components see the figure below.


GENERAL
SCALE 1 : 1
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE
DISMOUNTING
VACUUM PISTON
4822 395 10082
SOLDERING IRON
e.g. WELLER SOLDER TIP PT-H7
OR
A
SOLDERING IRON
SOLDER WICK
4822 321 40042
e.g. A PAIR OF TWEEZERS
B
HEATING
HEATING
SOLDERING IRON
SOLDER WICK
CLEANING
C
MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER
Ø 0.5 - 0.8 mm
SOLDERING IRON
PRESSURE
SOLDERING TIME
< 3 sec/side
SOLDER
Ø 0.5 - 0.8 mm
B
PRESSURE
SOLDERING IRON
PRECAUTIONS
SOLDERING IRON
RIGHT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT
EXAMPLES
RIGHT
SOLDERING IRON
NO!

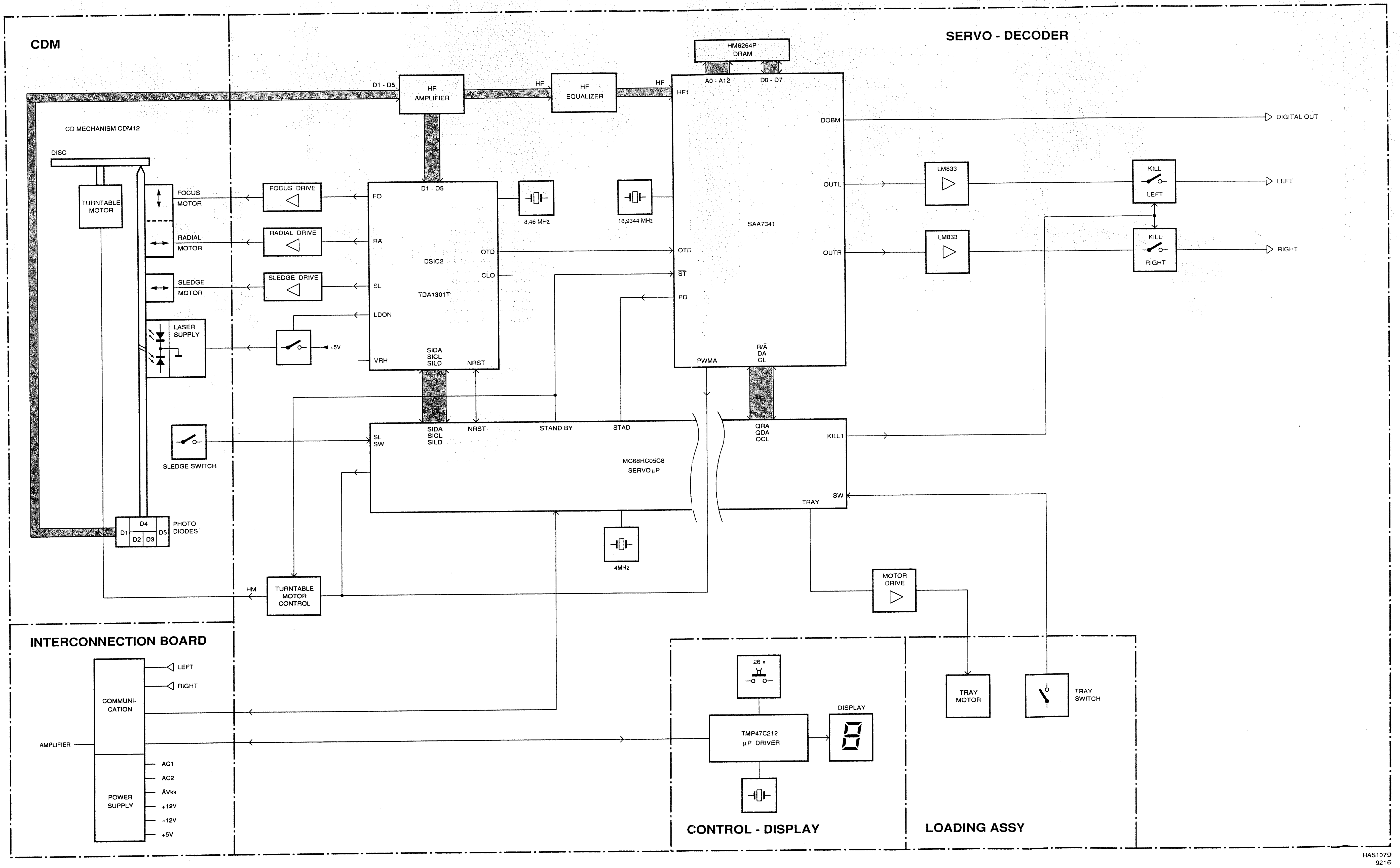
27 012C12

SERVICE TOOLS

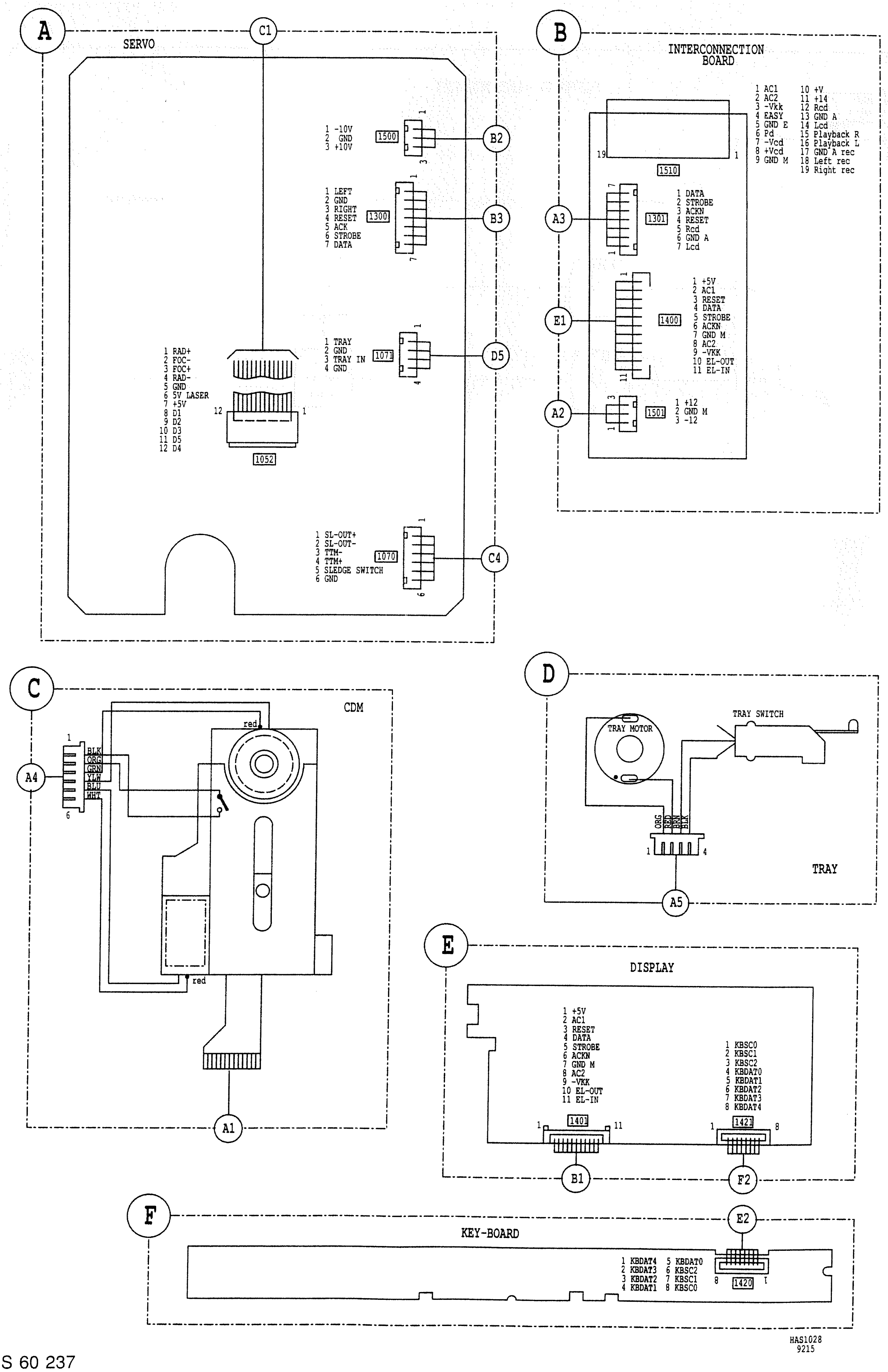
Audio signal disc	4822 397 30184
Disc without errors (test disc 5) + disc with DO errors, black spots and fingerprints (test disc 5A	4822 397 30096
Disc (65 min 1kHz)without pause	4822 397 30155
Max. diameter disc (58.0 mm)	4822 397 60141
Torx screwdrivers	
Set (straight)	4822 395 50145
Set (square)	4822 395 50132
13th order filter	4822 395 30204

A0-A12	- Address outputs to external RAM
AM	- Additional mute
CFB	- Data slicer feedback output to capacitor
CL	- Microprocessor interface clock input
CLO	- Clock output
D0-D7	- Data inputs/outputs to external RAM
D1-D4	- Central diode signal input
DA	- Microprocessor interface data input/putput line
DE1L	- Pin 1 for external de-emphasis capacitor and resistor
DE1R	- Pin 1 for external de-emphasis capacitor and resistor
DE2L	- Pin 2 for external de-emphasis capacitor and resistor
DE2R	- Pin 2 for external de-emphasis capacitor and resistor
DEEM	- Output for external de-emphasis switches
DOBM	- Digital audio output
FO	- Focus actuator output
HFD	- High-frequency detector
HFI	- Inverting data slicer input
HFI	- Non-inverting data slicer input
HM	- Motor control signal
IREF	- Current reference output
KO	- Kill out
KTC	- Kill time capacitor connection
LDON	- Laser drive on
MACC	- Motor accelerate signal
MBRA	- Motor brake signal
MHAL	- Hall effect detector for motor
NRST	- Reset input
OC	- VCO control
OTD	- Off track detector
OUTL	- Left channel output
OUTR	- Right channel output
PD	- Phase detector
PWMA	- Pulse width modulated motor control acceleration
PWMB	- Pulse width modulated motor control brake signal
R/A	- Request/acknowledge
R1-R2	- Satellite diode signal input
RA	- Radial actuator output
SD1-5	- Photodiode signals
SICL	- Serial interface clock
SIDA	- Serial interface data
SILD	- Serial interface load
SL	- Sledge output
ST	- Standby mode
TS1-TS2	- Test input
VddA	- Power supply analog part
VddD	- Power supply digital part
VddD	- Power supply digital part
VRH	- Reference input for A/D converter
VRL	- Reference input for A/D converter
VssA	- Ground analog part
VssD	- Ground digital part
WE	- Write enable
XIN	- Crystal oscillator input
XOUT	- Output to clock crystal
XTLI	- Oscillator input
XTLO	- Oscillator output
XTLR	- Oscillator reference

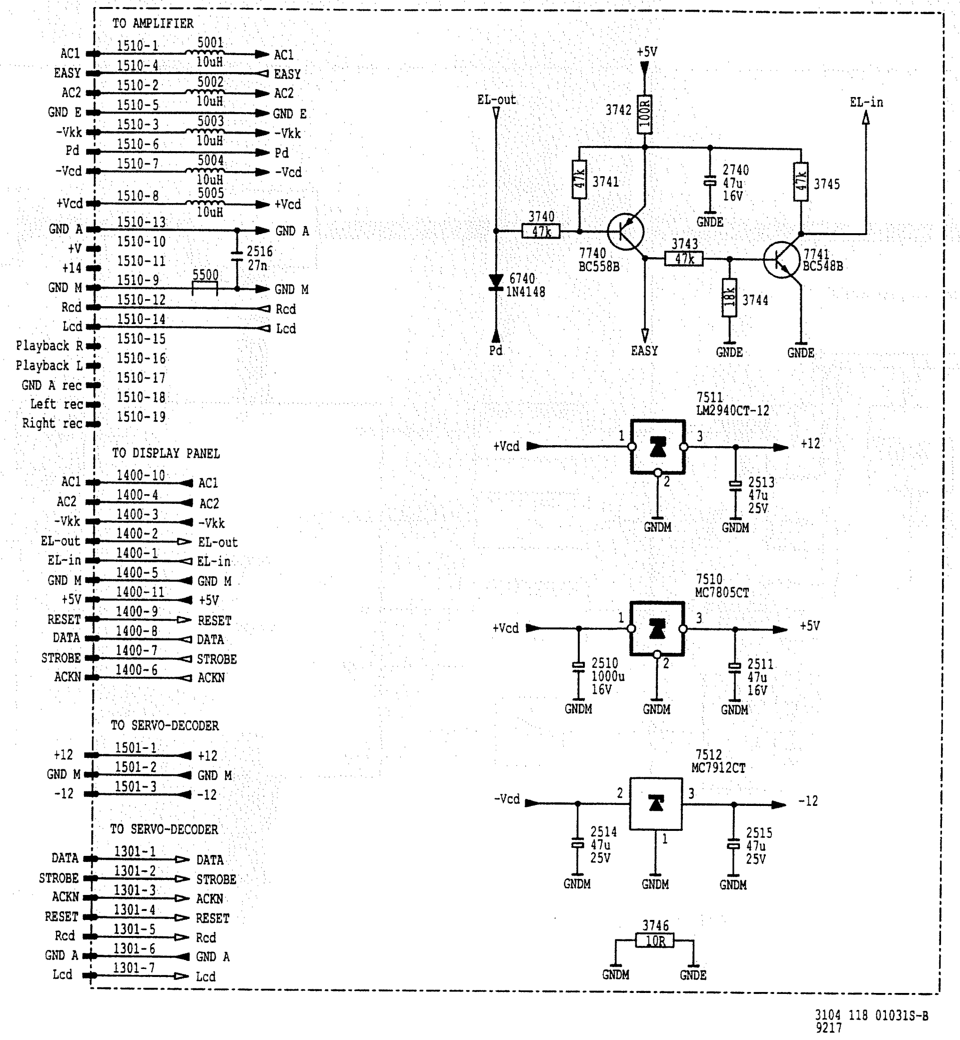
BLOCK DIAGRAM


CDM
SERVO - DECODER
CD MECHANISM CDM12
DISC
TURNTABLE MOTOR
FOCUS MOTOR
RADIAL MOTOR
SLEDGE MOTOR
LASER SUPPLY
PHOTO DIODES
D1
D2
D3
D4
D5
SLEDGE SWITCH
FOCUS DRIVE
RADIAL DRIVE
SLEDGE DRIVE
+5V
D1 - D5
HF AMPLIFIER
HF
HF EQUALIZER
HF
HF1
HM6264P DRAM
A0 - A12
D0 - D7
D1 - D5
FO
RA
SL
LDON
VRH
DSIC2
TDA1301T
OTD
CLO
SIDA
SICL
SILD
NRST
8,46 MHz
16,9344 MHz
SAA7341
DOBM
OUTL
OUTR
OTD
ST
PD
PWMA
R/A
DA
CL
DIGITAL OUT
LM833
LM833
KILL LEFT
KILL RIGHT
LEFT
RIGHT
SL
SW
SIDA
SICL
SILD
NRST
STAND BY
STAD
QRA
QDA
QCL
KILL1
MC68HC05C8
SERVO μP
SW
TRAY
4MHz
HM
TURNTABLE MOTOR CONTROL
MOTOR DRIVE
INTERCONNECTION BOARD
LEFT
RIGHT
COMMUNI-CATION
AMPLIFIER
POWER SUPPLY
AC1
AC2
AVkk
+12V
−12V
+5V
26 x
TMP47C212
μP DRIVER
DISPLAY
CONTROL - DISPLAY
TRAY MOTOR
TRAY SWITCH
LOADING ASSY
HAS1079
9216

WIRING DIAGRAM

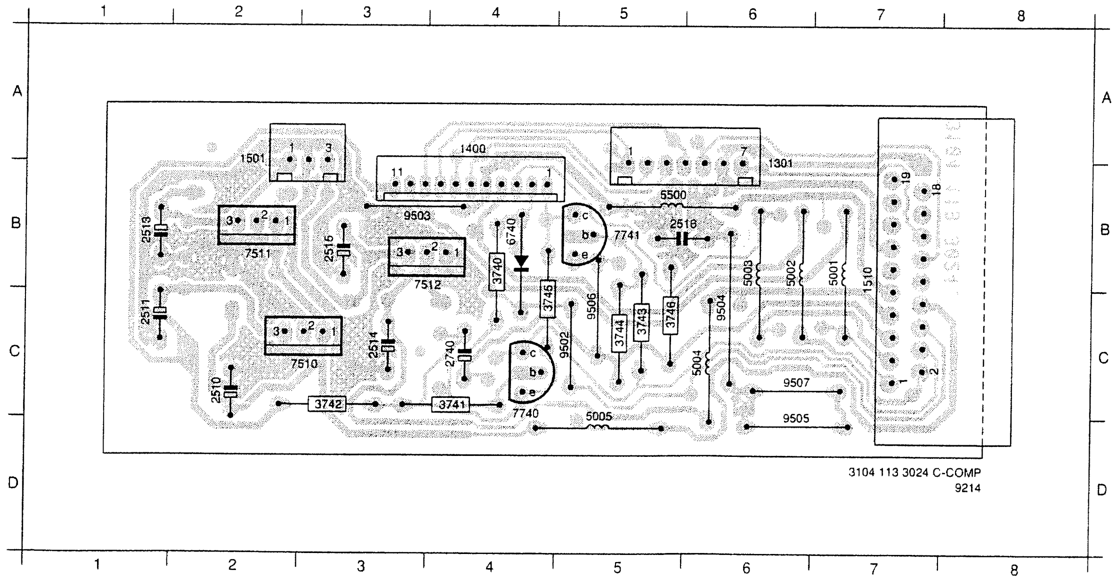

A
SERVO
C1
B
INTERCONNECTION BOARD
1 -10V
2 GND
3 +10V
1500
B2
1 LEFT
2 GND
3 RIGHT
4 RESET
5 ACK
6 STROBE
7 DATA
1300
B3
1 TRAY
2 GND
3 TRAY IN
4 GND
1073
D5
1 RAD+
2 FOC-
3 FOC+
4 RAD-
5 GND
6 5V LASER
7 +5V
8 D1
9 D2
10 D3
11 D5
12 D4
1052
1 SL-OUT+
2 SL-OUT-
3 TTM-
4 TTM+
5 SLEDGE SWITCH
6 GND
1070
C4
1 AC1
2 AC2
3 -Vkk
4 EASY
5 GND E
6 Pd
7 -Vcd
8 +Vcd
9 GND M
10 +V
11 +14
12 Rcd
13 GND A
14 Lcd
15 Playback R
16 Playback L
17 GND A rec
18 Left rec
19 Right rec
1510
A3
1301
1 DATA
2 STROBE
3 ACKN
4 RESET
5 Rcd
6 GND A
7 Lcd
E1
1400
1 +5V
2 AC1
3 RESET
4 DATA
5 STROBE
6 ACKN
7 GND M
8 AC2
9 -VKK
10 EL-OUT
11 EL-IN
A2
1501
1 +12
2 GND M
3 -12
C
CDM
A4
BLK
ORG
GRN
YLW
BLU
WHT
red
A1
D
TRAY MOTOR
TRAY SWITCH
ORG
RED
BRN
BLK
A5
TRAY
E
DISPLAY
1 +5V
2 AC1
3 RESET
4 DATA
5 STROBE
6 ACKN
7 GND M
8 AC2
9 -VKK
10 EL-OUT
11 EL-IN
1 KBSC0
2 KBSC1
3 KBSC2
4 KBDAT0
5 KBDAT1
6 KBDAT2
7 KBDAT3
8 KBDAT4
1403
1421
B1
F2
F
KEY-BOARD
E2
1 KBDAT4
2 KBDAT3
3 KBDAT2
4 KBDAT1
5 KBDAT0
6 KBSC2
7 KBSC1
8 KBSC0
1420
HAS1028
9215

INTERCONNECTION BOARD CIRCUIT DIAGRAM

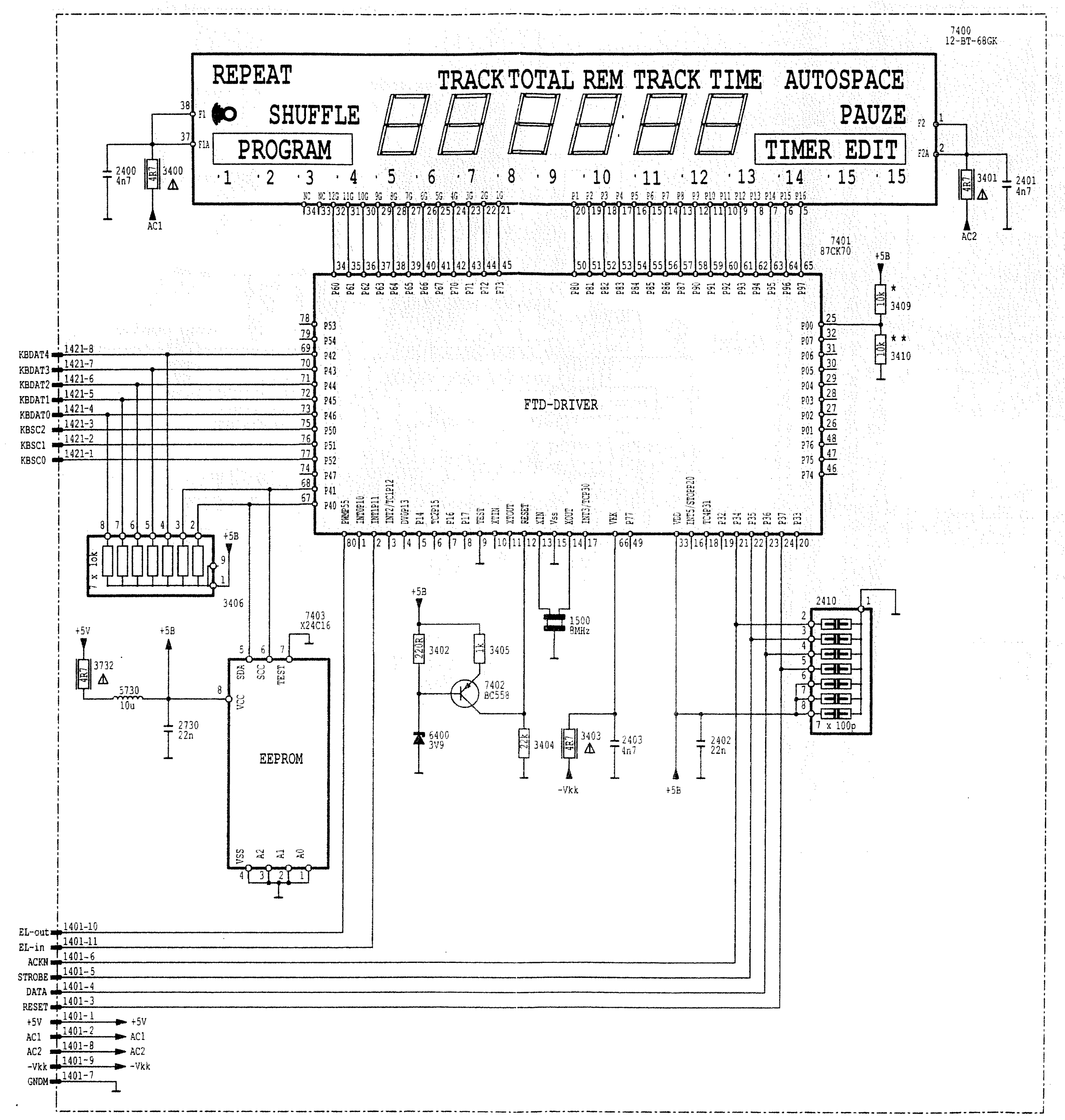

TO AMPLIFIER
1510-1 … 1510-19
5001 10uH
5002 10uH
5003 10uH
5004 10uH
5005 10uH
2516 27n
5500
AC1
EASY
AC2
GND E
-Vkk
Pd
-Vcd
+Vcd
GND A
+V
+14
GND M
Rcd
Lcd
Playback R
Playback L
GND A rec
Left rec
Right rec
TO DISPLAY PANEL
1400-1 … 1400-11
EL-out
EL-in
+5V
RESET
DATA
STROBE
ACKN
TO SERVO-DECODER
1501-1
1501-2
1501-3
+12
-12
TO SERVO-DECODER
1301-1 … 1301-7
+5V
EL-out
EL-in
3742 100k
3741 1k
2740 47u 16V
3745 47k
3740 47k
3743 47k
3744 18k
7740 BC558B
7741 BC548B
6740 1N4148
GNDE
7511 LM2940CT-12
2513 47u 25V
GNDM
7510 MC7805CT
2510 1000u 16V
2511 47u 16V
7512 MC7912CT
2514 47u 25V
2515 47u 25V
3746 10R
3104 118 01031S-B
9217

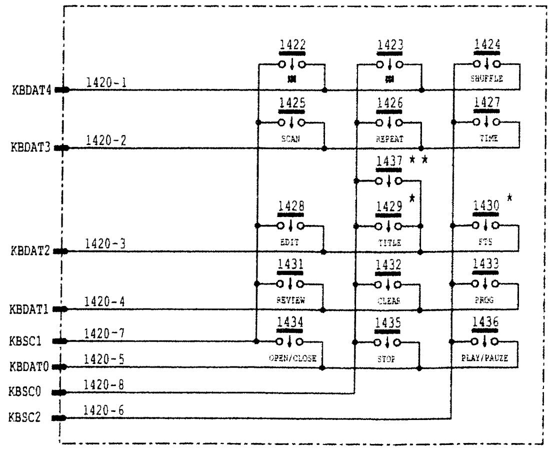
INTERCONNECTION BOARD PANEL

1301	B6	2510	C2	2515	B3	3741	C4	3745	C4	5003	B6	6740	B4	7740	C4	9504	C6
1400	A4	2511	C1	2516	B5	3742	C3	3746	C5	5004	C6	7510	C2	7741	B5	9505	D6
1501	B2	2513	B1	2740	C4	3743	C5	5001	B7	5005	D5	7511	B2	9502	C5	9506	C5
1510	C7	2514	C3	3740	B4	3744	C5	5002	B6	5500	B5	7512	B3	9503	B3	9507	C6


1
2
3
4
5
6
7
8
A
B
C
D
1501
1400
1301
7511
7512
7510
2513
2511
2510
2515
2514
2740
9503
3740
6740
3745
7741
7740
2516
5500
9506
9502
3744
3743
3746
9504
5003
5002
5001
5004
5005
1510
9507
9505
3742
3741
3104 113 3024 C-COMP
9214

CONTROL & DISPLAY CIRCUIT DIAGRAM


7400
12-BT-68GK
REPEAT
SHUFFLE
PROGRAM
TRACK TOTAL REM TRACK TIME AUTOSPACE
PAUZE
TIMER EDIT
·1 ·2 ·3 ·4 ·5 ·6 ·7 ·8 ·9 ·10 ·11 ·12 ·13 ·14 ·15 ·15
2400
4n7
3400
AC1
3401
2401
4n7
AC2
7401
87CK70
FTD-DRIVER
+5B
3409
3410
KBDAT4
KBDAT3
KBDAT2
KBDAT1
KBDAT0
KBSC2
KBSC1
KBSC0
3406
7403
X24C16
EEPROM
SDA
SCL
TEST
VCC
VSS
A2
A1
A0
+5V
3732
5730
10u
2730
22n
3402
3405
7402
BC558
6400
3V9
3404
3403
2403
4n7
-Vkk
1500
8MHz
2402
22n
2410
7 x 100p
EL-out
EL-in
ACKN
STROBE
DATA
RESET
+5V
AC1
AC2
-Vkk
GNDM
1401-10
1401-11
1401-6
1401-5
1401-4
1401-3
1401-1
1401-2
1401-8
1401-9
1401-7

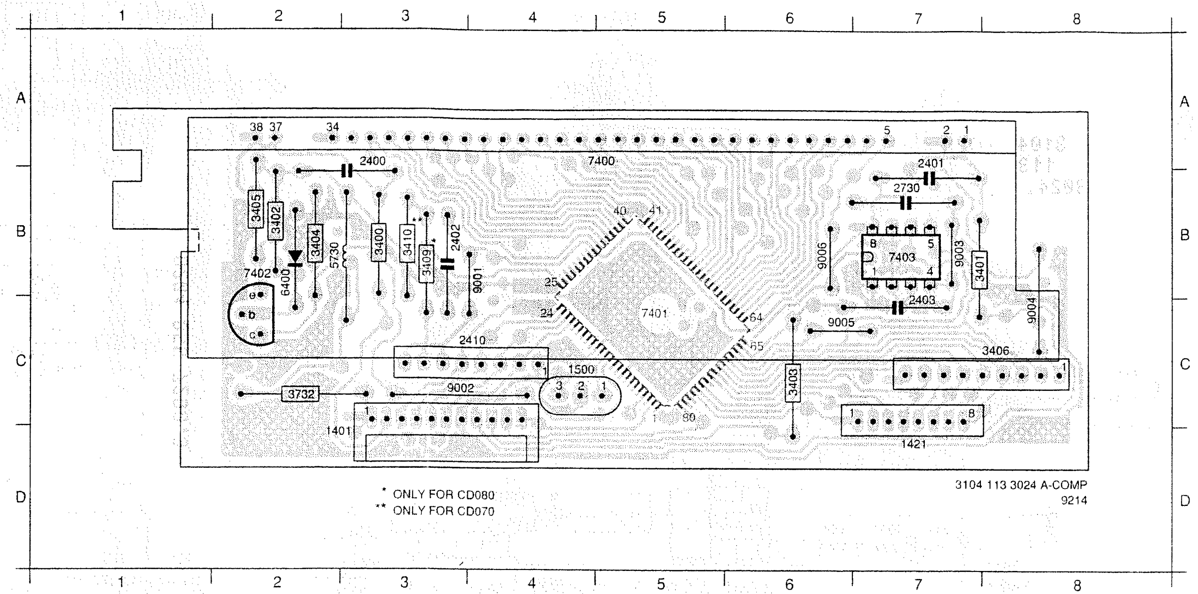

KBDAT4
KBDAT3
KBDAT2
KBDAT1
KBSC1
KBDAT0
KBSC0
KBSC2
1420-1
1420-2
1420-3
1420-4
1420-7
1420-5
1420-8
1420-6
1422
1423
1424
SHUFFLE
1425
SCAN
1426
REPEAT
1427
TIME
1437 * *
1428
EDIT
1429 *
TITLE
1430 *
FTS
1431
REVIEW
1432
CLEAR
1433
PROG
1434
OPEN/CLOSE
1435
STOP
1436
PLAY/PAUZE

* only for CD080
** only for CD070

CONTROL & DISPLAY PANEL

16

1401	D2	2400	A3	2403	C7	2732	C2	3402	B2	3405	B2	3410	B3	6400	C2	7402	B2	9002	C3	9005	C6
1421	D7	2401	A7	2410	C3	3400	B3	3403	C6	3406	C7	3732	C2	7400	A4	7403	B7	9003	B7	9006	B6
1500	C4	2402	B3	2730	B7	3401	B8	3404	B2	3409	B3	5730	B2	7401	C5	9001	B4	9004	C8		



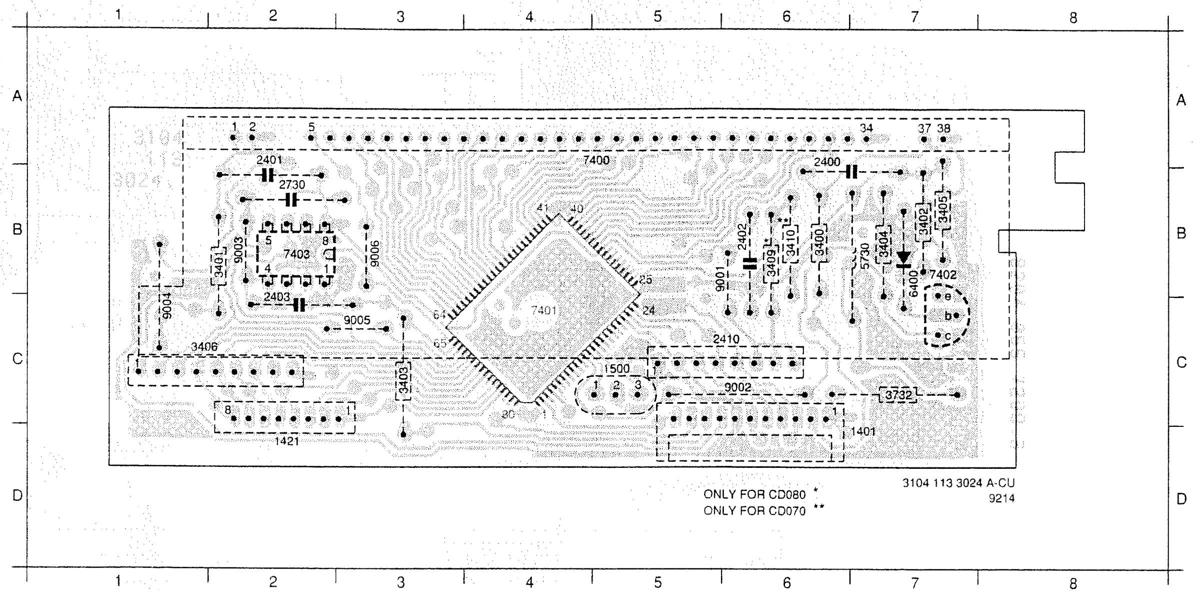
1
2
3
4
5
6
7
8
A
B
C
D
7400
7401
7402
7403
2400
2401
2402
2410
2403
2730
3400
3401
3402
3403
3404
3405
3406
3409
3410
3732
5730
6400
9001
9002
9003
9004
9005
9006
1401
1421
1500

* ONLY FOR CD080
** ONLY FOR CD070

3104 113 3024 A-COMP
9214

17

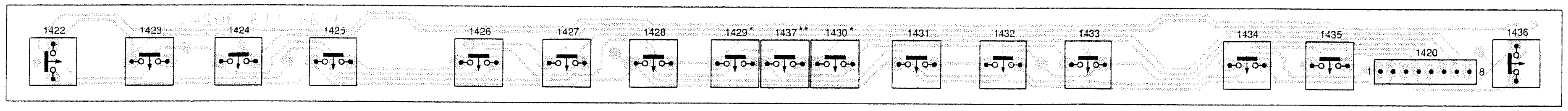
1401	D7	2400	A6	2403	C2	2732	C7	3402	B7	3405	B7	3410	B6	6400	C7	7402	B7	9002	C6	9005	C3
1421	D2	2401	A2	2410	C5	3400	B6	3403	C3	3406	C1	3732	C7	7400	A4	7403	B2	9003	B2	9006	B3
1500	C5	2402	B6	2730	B2	3401	B2	3404	B7	3409	B6	5730	B7	7401	C4	9001	B6	9004	C1		



1
2
3
4
5
6
7
8
A
B
C
D
7400
7401
7402
7403
2400
2401
2402
2410
2403
2730
3400
3401
3402
3403
3404
3405
3406
3409
3410
3732
5730
6400
9001
9002
9003
9004
9005
9006
1401
1421
1500

ONLY FOR CD080 *
ONLY FOR CD070 **

3104 113 3024 A-CU
9214

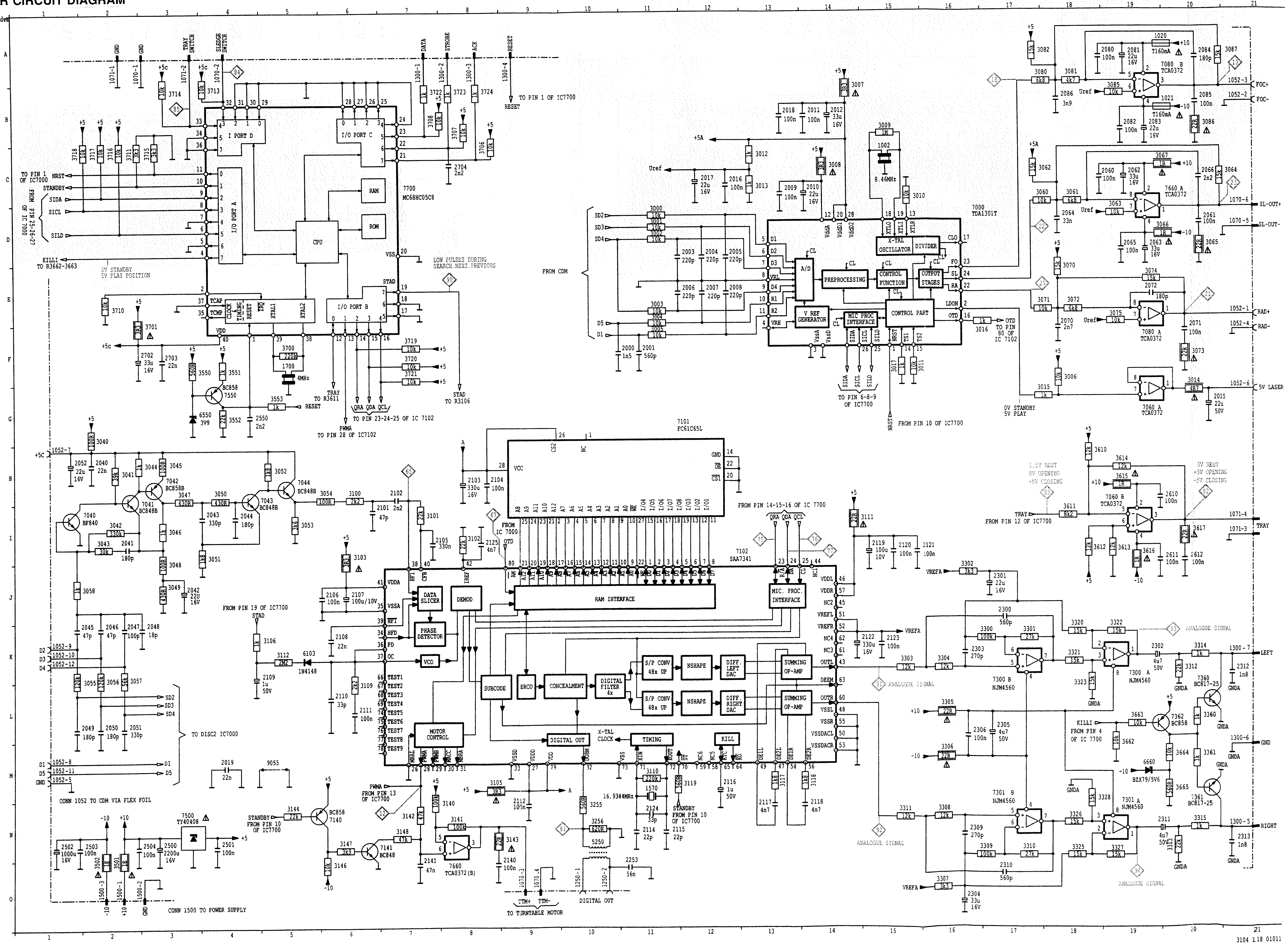


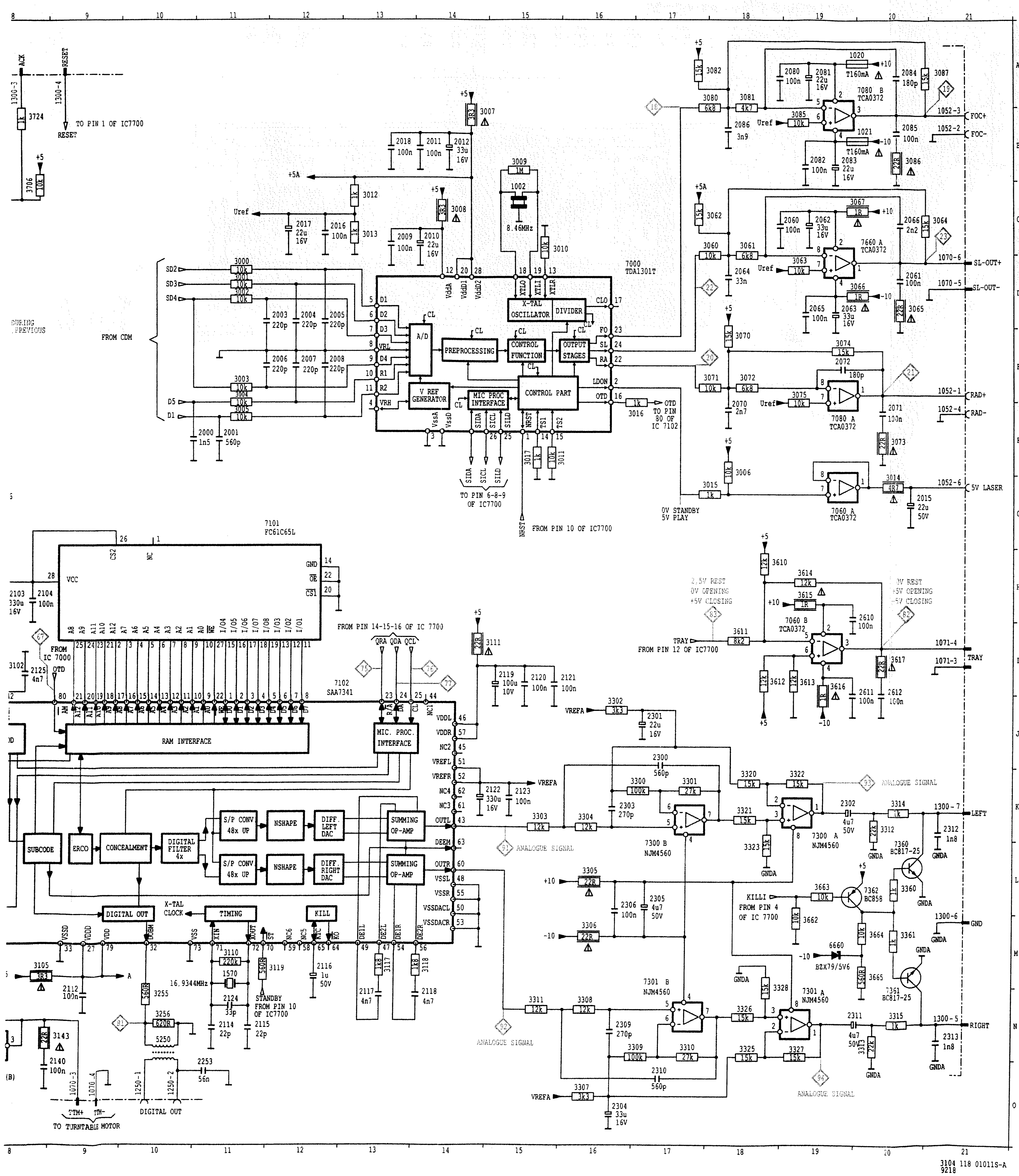
1422
1423
1424
1425
1426
1427
1428
1429 *
1437 **
1430 *
1431
1432
1433
1434
1435
1420
1436

* ONLY FOR CD080
** ONLY FOR CD070

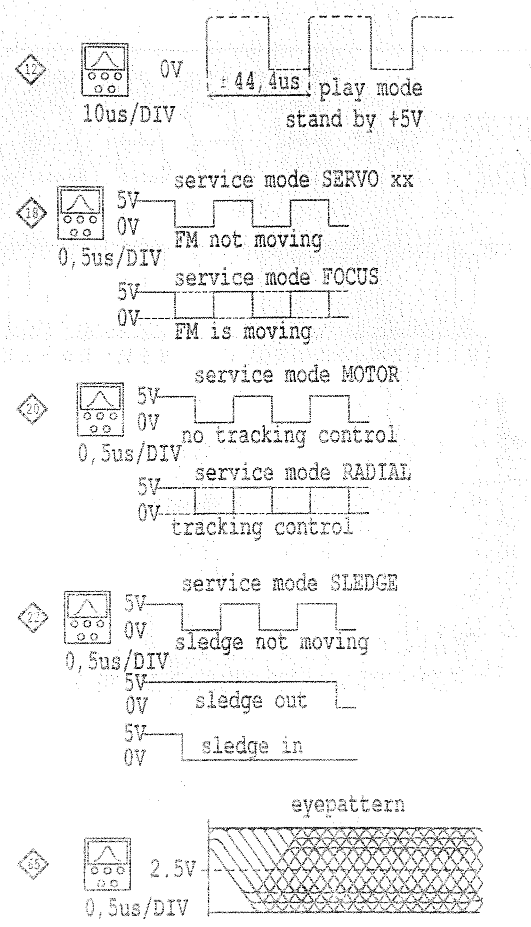
3104 113 3024 B-COMP
9213

SERVO & DECODER CIRCUIT DIAGRAM


7700
MC68HC05C8
I/O PORT A
I/O PORT C
I/O PORT D
I/O PORT B
CPU
RAM
ROM
TO PIN 1 OF IC7000
FROM PIN 25-26-27 OF IC7000
KILLI TO R3662-3663
0V STANDBY
5V PLAY POSITION
LOW PULSES DURING SEARCH,NEXT,PREVIOUS
TO PIN 1 OF IC7700 RESET
TRAY TO R3611
STAD TO R3106
PWMA TO PIN 28 OF IC7102
TO PIN 23-24-25 OF IC 7102
7000
TDA1301T
FROM CDM
A/D
PREPROCESSING
CONTROL FUNCTION
OUTPUT STAGES
X-TAL OSCILLATOR
DIVIDER
V REF GENERATOR
MIC PROC INTERFACE
CONTROL PART
8.46MHz
TO PIN 6-8-9 OF IC7000
FROM PIN 10 OF IC7700
TO PIN 80 OF IC 7102
7080 B TCA0372
7660 A TCA0372
7080 A TCA0372
7060 A TCA0372
7060 B TCA0372
FOC+
FOC-
SL-OUT+
SL-OUT-
RAD+
RAD-
5V LASER
TRAY
0V STANDBY 5V PLAY
7101
FC61C65L
7102
SAA7341
DATA SLICER
DEMOD
PHASE DETECTOR
VCO
RAM INTERFACE
MIC. PROC. INTERFACE
SUBCODE
ERCO
CONCEALMENT
DIGITAL FILTER 4x
S/P CONV 48x UP
NSHAPE
DIFF. LEFT DAC
DIFF. RIGHT DAC
SUMMING OP-AMP
MOTOR CONTROL
DIGITAL OUT
X-TAL CLOCK
TIMING
KILL
16.9344MHz
FROM PIN 14-15-16 OF IC 7700
FROM PIN 19 OF IC7700
FROM PIN 13 OF IC7700
FROM PIN 12 OF IC7700
FROM PIN 4 OF IC 7700
7300 A NJM4560
7300 B NJM4560
7301 A NJM4560
7301 B NJM4560
ANALOGUE SIGNAL
LEFT
RIGHT
GND
TO DISC2 IC7000
CONN 1052 TO CDM VIA FLEX FOIL
CONN 1500 TO POWER SUPPLY
7500 TY40408
TO TURNTABLE MOTOR
DIGITAL OUT
7660 TCA0372(B)


8
9
10
11
12
13
14
15
16
17
18
19
20
21
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
1300-3
1300-4
ACK
RESET
3724
TO PIN 1 OF IC7700
RESET
3706
+5V
+5A
Uref
3000
3001
3002
3003
3004
3005
SD2
SD3
SD4
D5
D1
FROM CDM
DURING
PREVIOUS
2000
1n5
2001
560p
2003
2004
2005
2006
2007
2008
220p
2017
22u
16V
2016
100n
3013
3012
2018
2011
2012
33u
3007
3R3
3008
2009
2010
3009
1M
1002
8.46MHz
3010
7000
TDA1301T
D1
D2
D3
D4
VRL
R1
R2
VRH
A/D
PREPROCESSING
CONTROL FUNCTION
OUTPUT STAGES
X-TAL OSCILLATOR
DIVIDER
CONTROL PART
V REF GENERATOR
MIC PROC INTERFACE
XTLO
XTLI
XTLR
CLO
FO
SL
RA
LDON
OTD
VddA
VddD1
VddD2
VssA
VssD
SIDA
SICL
SILD
NRST
TS1
TS2
3016
TO PIN 80 OF IC 7102
OTD
TO PIN 6-8-9 OF IC7700
FROM PIN 10 OF IC7700
3017
3011
3080
6k8
3081
4k7
3082
15k
2086
3n9
3085
10k
1020
T160mA
1021
2080
100n
2081
22u
16V
2082
2083
7080 B
TCA0372
2084
180p
3087
2085
3086
1052-3
1052-2
FOC+
FOC-
3060
3061
3062
3063
3064
3065
3066
3067
2060
2062
2064
33n
2065
2063
2066
2n2
2061
7660 A
TCA0372
1070-6
1070-5
SL-OUT+
SL-OUT-
3070
3071
3072
3073
3074
3075
2070
2n7
2071
2072
180p
7080 A
TCA0372
1052-1
1052-4
RAD+
RAD-
3006
3015
3014
4R7
2015
22u
50V
7060 A
TCA0372
1052-6
5V LASER
0V STANDBY
5V PLAY
3610
3611
8k2
3612
3613
3614
3615
3616
3617
2610
2611
2612
7060 B
TCA0372
1071-4
1071-3
TRAY
FROM PIN 12 OF IC7700
2.5V REST
0V OPENING
+5V CLOSING
0V REST
+5V OPENING
-5V CLOSING
7101
FC61C65L
VCC
GND
OE
CS1
CS2
NC
2103
330u
16V
2104
100n
FROM PIN 14-15-16 OF IC 7700
QRA
QDA
QCL
FROM IC 7000
OTD
3102
2125
4n7
7102
SAA7341
RAM INTERFACE
MIC. PROC. INTERFACE
VDDL
VDDR
VREFL
VREFR
NC4
NC3
OUTL
DEEM
OUTR
VSSL
VSSR
VSSDACL
VSSDACR
SUBCODE
ERCO
CONCEALMENT
DIGITAL FILTER 4x
S/P CONV 48x UP
NSHAPE
DIFF. LEFT DAC
DIFF. RIGHT DAC
SUMMING OP-AMP
DIGITAL OUT
X-TAL CLOCK
TIMING
KILL
3111
22R
2119
100u
10V
2120
2121
2122
330u
2123
3302
3k3
VREFA
2301
22u
16V
2300
560p
3300
100k
3301
27k
3303
3304
12k
2303
270p
7300 B
NJM4560
3320
3322
15k
3321
3323
7300 A
NJM4560
2302
4u7
50V
3312
3314
1k
2312
1n8
1300-7
LEFT
ANALOGUE SIGNAL
3305
3306
22R
2305
4u7
2306
100n
+10
-10
KILLI
FROM PIN 4 OF IC 7700
3663
3662
7362
BC858
7360
BC817-25
3360
3664
3361
3665
560R
6660
BZX79/5V6
7361
BC817-25
1300-6
GND
GNDA
3328
7301 B
NJM4560
7301 A
NJM4560
3311
3308
3309
3310
2309
2310
3326
3325
3327
2311
3313
3315
2313
1300-5
RIGHT
3307
2304
33u
16V
3105
3R3
2112
100n
3110
220k
1570
16.9344MHz
2124
33p
2114
22p
2115
22p
3119
STANDBY FROM PIN 10 OF IC7700
2116
1u
50V
3117
3118
1k8
2117
4n7
2118
4n7
3255
560R
3256
620R
5250
2253
56n
1250-1
1250-2
DIGITAL OUT
3143
2140
100n
1070-3
1070-4
TTM+
TTM-
TO TURNTABLE MOTOR
(B)

1002	C15	3048	J 3
1020	A20	3049	J 3
1021	B20	3050	H 4
1052	K 1	3051	I 4
1052	K 1	3052	H 5
1052	M 1	3053	I 5
1052	M 1	3054	H 6
1052	K 1	3055	L 2
1052	M 1	3056	K 2
1052	H 1	3057	K 2
1052	B21	3058	J 2
1052	G21	3060	C18
1052	F21	3061	C18
1052	E21	3062	C17
1052	B21	3063	D19
1070	O 9	3064	C21
1070	O 9	3065	D20
1070	A 4	3066	D19
1070	A 2	3067	C19
1070	D21	3070	E18
1070	D21	3071	E18
1071	A 3	3072	E18
1071	A 2	3073	F20
1071	I21	3074	E19
1071	I21	3075	E19
1250	O10	3080	A18
1250	O10	3081	A18
1300	A 9	3082	A17
1300	A 8	3085	B19
1300	A 8	3086	B20
1300	A 7	3087	A21
1300	K21	3100	H 6
1300	N21	3101	I 7
1300	M21	3102	I 8
1500	O 2	3103	I 6
1500	O 2	3105	M 8
1500	O 2	3106	K 5
1570	M11	3109	L 6
1700	F 5	3110	M11
2000	F11	3111	I14
2001	F11	3112	K 5
2003	D12	3117	M13
2004	D12	3118	M14
2005	D12	3119	M12
2006	E12	3140	N 8
2007	E12	3141	N 8
2008	E12	3142	N 7
2009	C13	3143	N 9
2010	C14	3144	N 5
2011	B14	3146	O 6
2012	B14	3147	N 6
2015	G20	3148	N 7
2016	C12	3255	N10
2017	C12	3256	N10
2018	B13	3300	K16
2019	M 4	3301	K17
2040	H 2	3302	J16
2041	I 2	3303	K15
2042	J 3	3304	K16
2043	I 4	3305	L16
2044	I 4	3306	M16
2045	K 1	3307	O16
2046	K 2	3308	N16
2047	K 2	3309	N16
2048	K 3	3310	N17
2049	L 1	3311	N15
2050	L 2	3312	K20
2051	L 2	3313	N20
2052	H 1	3314	K20
2060	C18	3315	N20
2061	D20	3320	K18
2062	C19	3321	K18
2063	D19	3322	K19
2064	D18	3323	L18
2065	D19	3325	N18
2066	C20	3326	N18
2070	F18	3327	N19
2071	F20	3328	M18
2072	E19	3360	L20
2080	A19	3361	M20
2081	A19	3501	O 2
2082	B19	3502	O 2
2083	B19	3550	F 3
2084	A20	3551	F 4
2085	B20	3552	G 4
2086	B18	3553	G 5
2101	I 6	3610	H18
2102	H 7	3611	I18
2103	H 8	3612	I18
2104	H 8	3613	I19
2105	I 7	3614	H19
2106	J 6	3615	H19
2107	J 6	3616	I19
2108	K 6	3617	I20
2109	K 5	3662	M19
2110	L 6	3663	L19
2111	L 6	3664	M20
2112	N 9	3665	M20
2114	N11	3700	F 5
2115	N11	3701	F 3
2116	M12	3706	C 8
2117	N13	3707	B 8
2118	N14	3708	B 7
2119	I15	3710	E 2
2120	I15	3711	C 2
2121	I15	3713	B 4
2122	K14	3714	B 3
2123	K15	3715	C 3
2124	N11	3716	C 2
2125	I 8	3717	C 2
2140	O 9	3718	C 1
2141	O 7	3719	F 7
2253	O11	3720	F 7
2300	J17	3721	F 7
2301	J17	3722	B 7
2302	K19	3723	B 8
2303	K16	3724	B 8
2304	O16	5250	N10
2305	L17	6103	K 5
2306	L16	6550	G 4
2309	N16	6660	M19
2310	O17	7000	D16
2311	N19	7040	I 2
2312	K21	7041	I 2
2313	N21	7042	H 3
2500	N 3	7043	H 4
2501	N 4	7044	H 5
2502	N 1	7060	I19
2503	N 2	7060	G19
2504	N 3	7080	F19
2550	G 4	7080	A20
2610	H20	7101	G11
2611	I20	7102	I12
2612	I20	7140	N 6
2702	F 2	7141	N 6
2703	F 3	7300	L17
2704	C 8	7300	K19
3000	D11	7301	M17
3001	D11	7301	N19
3002	D11	7360	L20
3003	E11	7361	M20
3004	E11	7362	L20
3005	F11	7500	N 3
3006	F18	7550	G 4
3007	B14	7660	O 8
3008	C14	7660	C20
3009	B15	7700	C 7
3010	C15	9055	M 5
3011	F16		
3012	C13		
3013	C13		
3014	G20		
3015	G18		
3016	F16		
3017	F15		
3040	G 2		
3041	H 2		
3042	I 2		
3043	I 2		
3044	H 3		
3045	H 3		
3046	I 3		
3047	H 3		

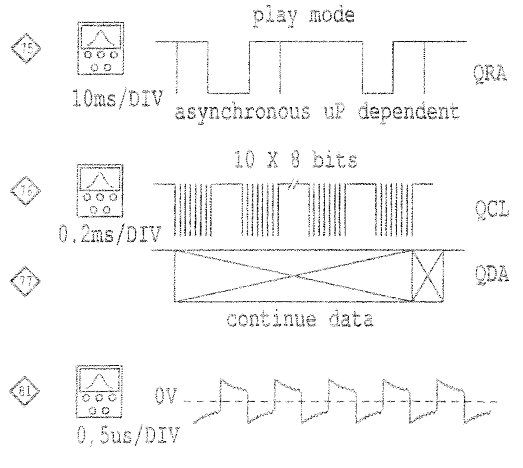

12
0V
44,4us
play mode
stand by +5V
10us/DIV
18
service mode SERVO xx
5V
0V
FM not moving
0,5us/DIV
service mode FOCUS
5V
0V
FM is moving
20
service mode MOTOR
5V
0V
no tracking control
0,5us/DIV
service mode RADIAL
5V
0V
tracking control
22
service mode SLEDGE
5V
0V
sledge not moving
0,5us/DIV
5V
0V
sledge out
5V
0V
sledge in
eyepattern
65
2.5V
0,5us/DIV

19 ACTIVITY DURING PLAY

21 ACTIVITY DURING PLAY

23 SERVICE POSITION SLEDGE
SL-OUT -2,6V
SL-IN +2,6V

67 SERVICE POSITION SLEDGE,FOCUS,MOTOR: 0V
SERVICE POSITION RADIAL: 5V

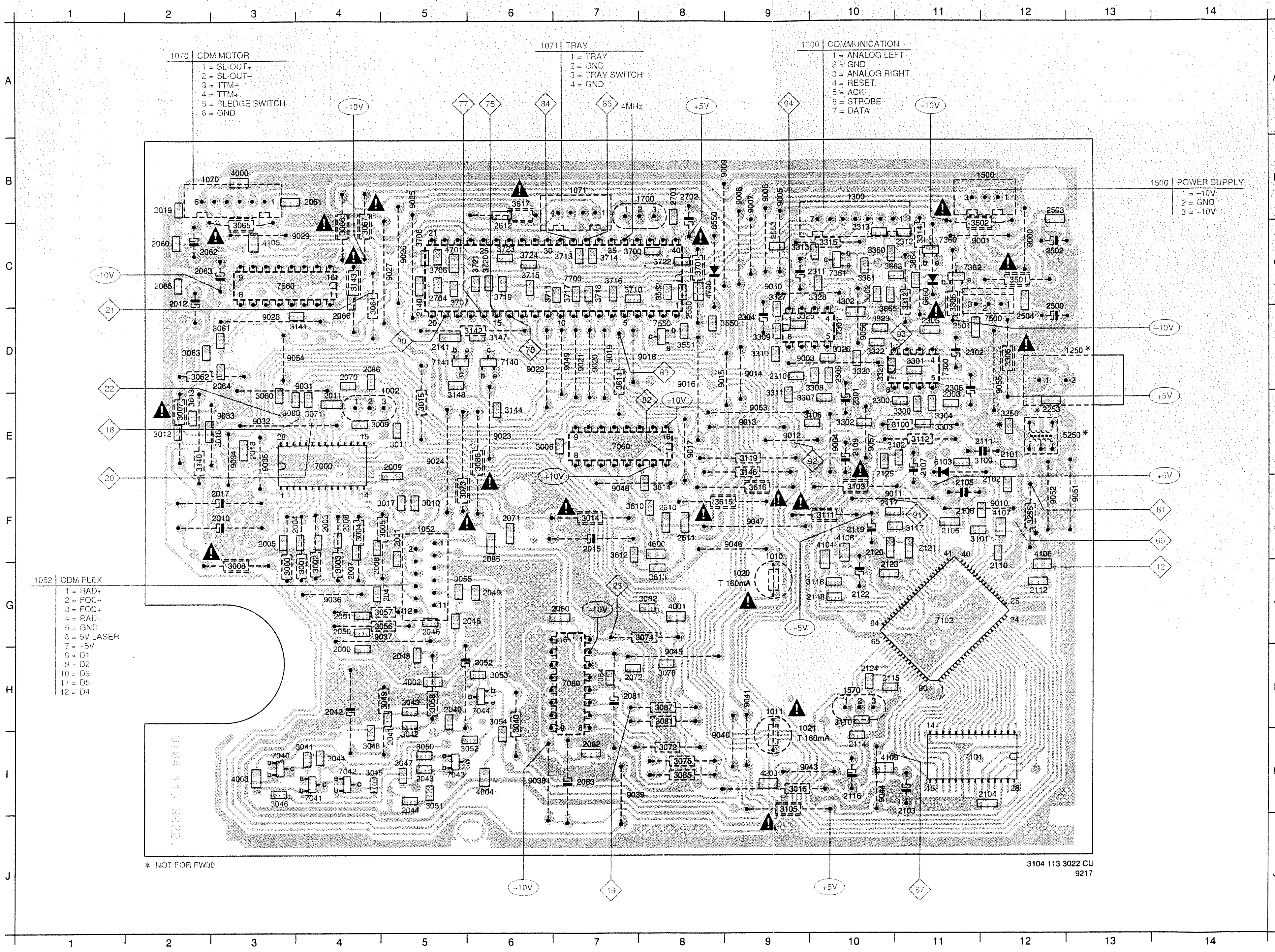

75
play mode
QRA
10ms/DIV
asynchronous uP dependent
76
10 X 8 bits
QCL
0.2ms/DIV
77
QDA
continue data
81
0V
0,5us/DIV

84 SERVICE POSITION SLEDGE
0V REST POSITION
+5V WHEN SLEDGE IS MOVING

85 +5V REST POSITION OF TRAY
0V WHEN OPENING OR CLOSING

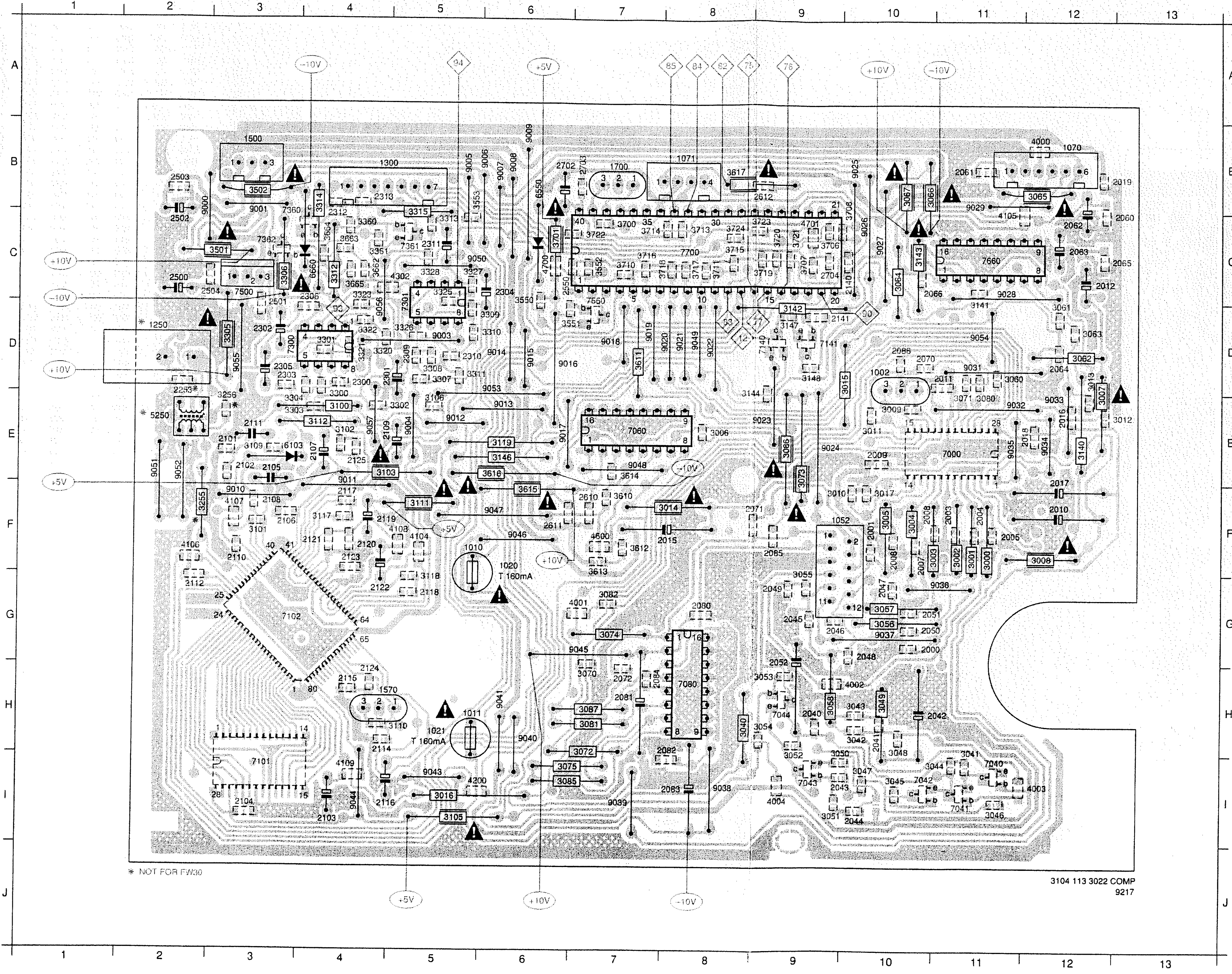
3104 118 01011S-A
9218

SERVO & DECODER PANEL SOLDER SIDE


1070 CDM MOTOR
1 = SL-OUT+
2 = SL-OUT–
3 = TTM–
4 = TTM+
5 = SLEDGE SWITCH
6 = GND
1071 TRAY
1 = TRAY
2 = GND
3 = TRAY SWITCH
4 = GND
1300 COMMUNICATION
1 = ANALOG LEFT
2 = GND
3 = ANALOG RIGHT
4 = RESET
5 = ACK
6 = STROBE
7 = DATA
1500 POWER SUPPLY
1 = –10V
2 = GND
3 = –10V
1052 CDM FLEX
1 = RAD+
2 = FOC–
3 = FOC+
4 = RAD–
5 = GND
6 = 5V LASER
7 = +5V
8 = D1
9 = D2
10 = D3
11 = D5
12 = D4
+10V
–10V
+5V
4MHz
1020 T 160mA
1021 T 160mA
* NOT FOR FW30
3104 113 3022 CU 9217

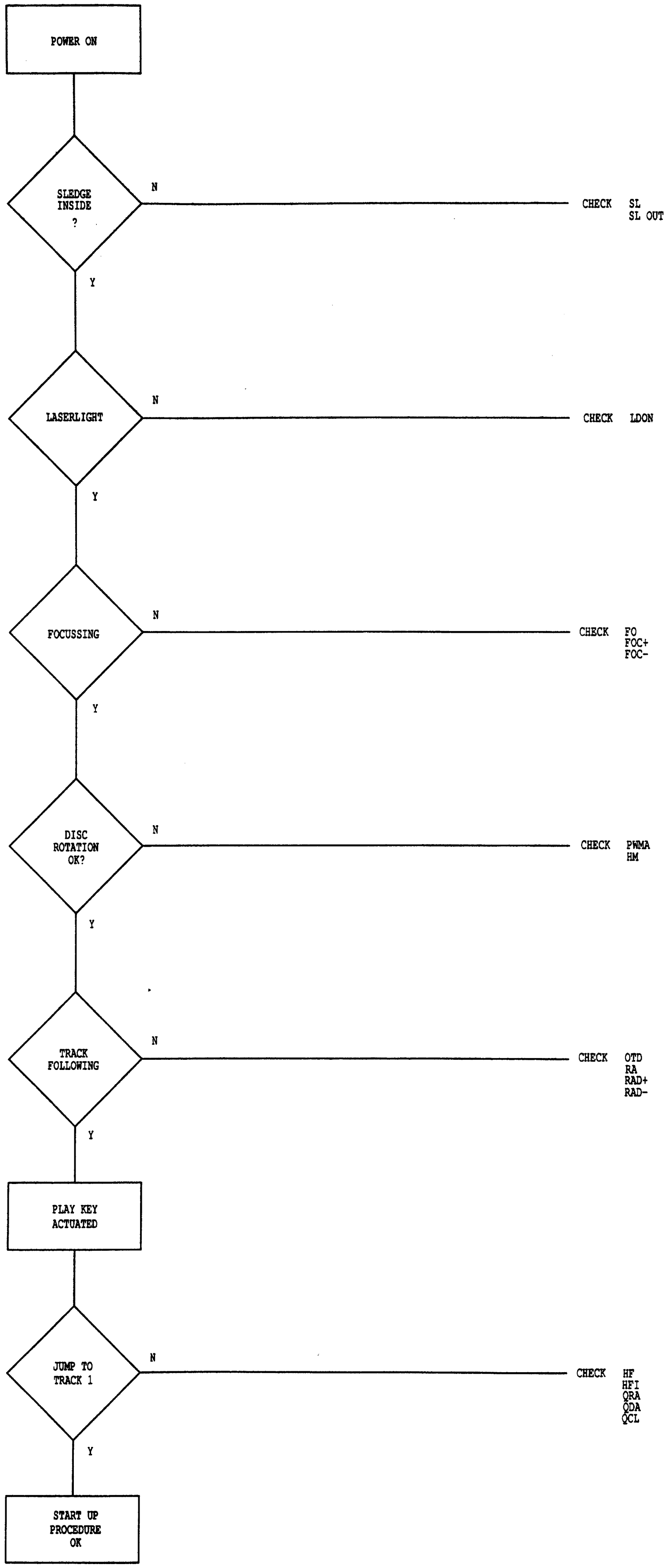
1002	E4	2253	E12	3105	I9	4004	I6	9052	F12
1010	F9	2300	E10	3106	E9	4104	F10	9053	E9
1011	H9	2301	E10	3109	E11	4105	C3	9054	D3
1020	G9	2302	D11	3110	H10	4106	G12	9055	E12
1021	I9	2303	E11	3111	F10	4107	F12	9056	D10
1052	F5	2304	D9	3112	E11	4108	F10	9057	E10
1070	B2	2305	E11	3117	F11	4109	I10		
1071	B7	2306	D11	3118	G9	4200	I9		
1250	D12	2309	D10	3119	E9	4302	D10		
1300	B10	2310	D9	3140	E2	4600	F8		
1500	B11	2311	C9	3141	D3	4700	C8		
1570	H10	2312	C11	3142	D5	4701	C5		
1700	B7	2313	C10	3143	C4	5250	E12		
2000	H4	2500	D12	3144	E6	6103	E11		
2001	F5	2501	D11	3146	E9	6550	C8		
2003	F4	2502	C12	3147	D6	6660	C11		
2004	F4	2503	B12	3148	E5	7000	E4		
2005	F3	2504	D12	3255	F12	7040	I3		
2007	G4	2550	D8	3256	E12	7041	I4		
2008	F4	2610	F8	3300	E10	7042	I4		
2008	G4	2611	F8	3301	D11	7043	I5		
2009	E5	2612	C6	3302	E10	7044	H6		
2010	F3	2702	B8	3303	E11	7060	E7		
2011	E4	2703	B8	3304	E11	7080	H7		
2012	C2	2704	C5	3305	D12	7101	I11		
2015	F7	3000	G3	3306	D11	7102	G11		
2016	E3	3001	G4	3307	E9	7140	D6		
2017	F2	3002	G4	3308	E9	7141	D5		
2018	E3	3003	G4	3309	D9	7300	D11		
2019	B2	3004	F4	3310	D9	7301	D10		
2040	H5	3005	F5	3311	E9	7360	C11		
2041	I5	3006	E6	3312	D11	7361	C10		
2042	H4	3007	E2	3313	C9	7362	C11		
2043	I5	3008	G3	3314	C11	7500	D12		
2044	J5	3009	E4	3315	C10	7550	D8		
2045	G5	3010	F5	3320	D10	7660	C3		
2046	G5	3011	E5	3321	D10	7700	C7		
2047	G5	3012	E2	3322	D10	9000	C12		
2048	H5	3013	E2	3323	D10	9001	C11		
2049	G6	3014	F7	3325	D9	9003	D9		
2050	G4	3015	E5	3326	D10	9004	E10		
2051	G4	3016	I9	3327	C9	9005	B9		
2052	H6	3017	F4	3328	C9	9006	B9		
2060	C2	3040	I6	3360	C10	9007	B9		
2061	B4	3041	I3	3361	C10	9008	B9		
2062	C2	3042	I5	3501	C12	9009	B9		
2063	C2	3043	H5	3502	C11	9010	F12		
2064	D3	3044	I4	3550	D8	9011	F10		
2065	C2	3045	I4	3551	D8	9012	E9		
2066	D4	3046	I3	3552	C8	9013	E9		
2070	D4	3047	I5	3553	C9	9014	D9		
2071	F6	3048	I4	3610	F7	9015	D8		
2072	H7	3049	H5	3611	D7	9016	D8		
2080	G6	3050	I5	3612	F7	9017	E8		
2081	H7	3051	I5	3613	G8	9018	D7		
2082	I7	3052	I5	3614	F8	9019	D7		
2083	I7	3053	H6	3615	F8	9020	D7		
2084	H7	3054	H6	3616	F9	9021	D7		
2085	G6	3055	G5	3617	B6	9022	D6		
2086	D4	3056	G4	3662	D10	9023	E6		
2101	E12	3057	G4	3663	C10	9024	E5		
2102	F12	3058	H5	3664	C11	9025	B5		
2103	J11	3060	E3	3665	D10	9026	C5		
2104	I11	3061	D3	3700	C7	9027	C5		
2105	F11	3062	D2	3701	C8	9028	D3		
2106	F11	3063	D2	3706	C5	9029	C3		
2107	F11	3064	D4	3707	D5	9031	D3		
2108	F11	3065	C3	3708	C5	9032	E3		
2109	E10	3066	C4	3710	C7	9033	E3		
2110	G12	3067	C4	3711	C6	9034	E3		
2111	E11	3070	H8	3713	C7	9035	E3		
2112	G12	3071	E4	3714	C7	9036	G4		
2114	I10	3072	I8	3715	C6	9037	G4		
2115	H10	3073	F5	3716	C7	9038	I6		
2116	I10	3074	G7	3717	C7	9039	I7		
2117	F10	3075	I8	3718	C7	9040	I8		
2118	G9	3080	E3	3719	C6	9041	H9		
2119	F10	3081	H8	3720	C6	9043	I9		
2120	F10	3082	G7	3721	C6	9044	I10		
2121	F11	3085	I8	3722	C8	9045	H8		
2122	G10	3086	E6	3723	C6	9046	F8		
2123	G10	3087	H8	3724	C6	9047	F9		
2124	H10	3100	E10	4000	B3	9048	F7		
2125	F10	3101	F11	4001	G8	9049	D7		
2140	D5	3102	E10	4002	H5	9050	C9		
2141	D5	3103	F10	4003	I3	9051	F13		

SERVO & DECODER PANEL COMPONENT SIDE



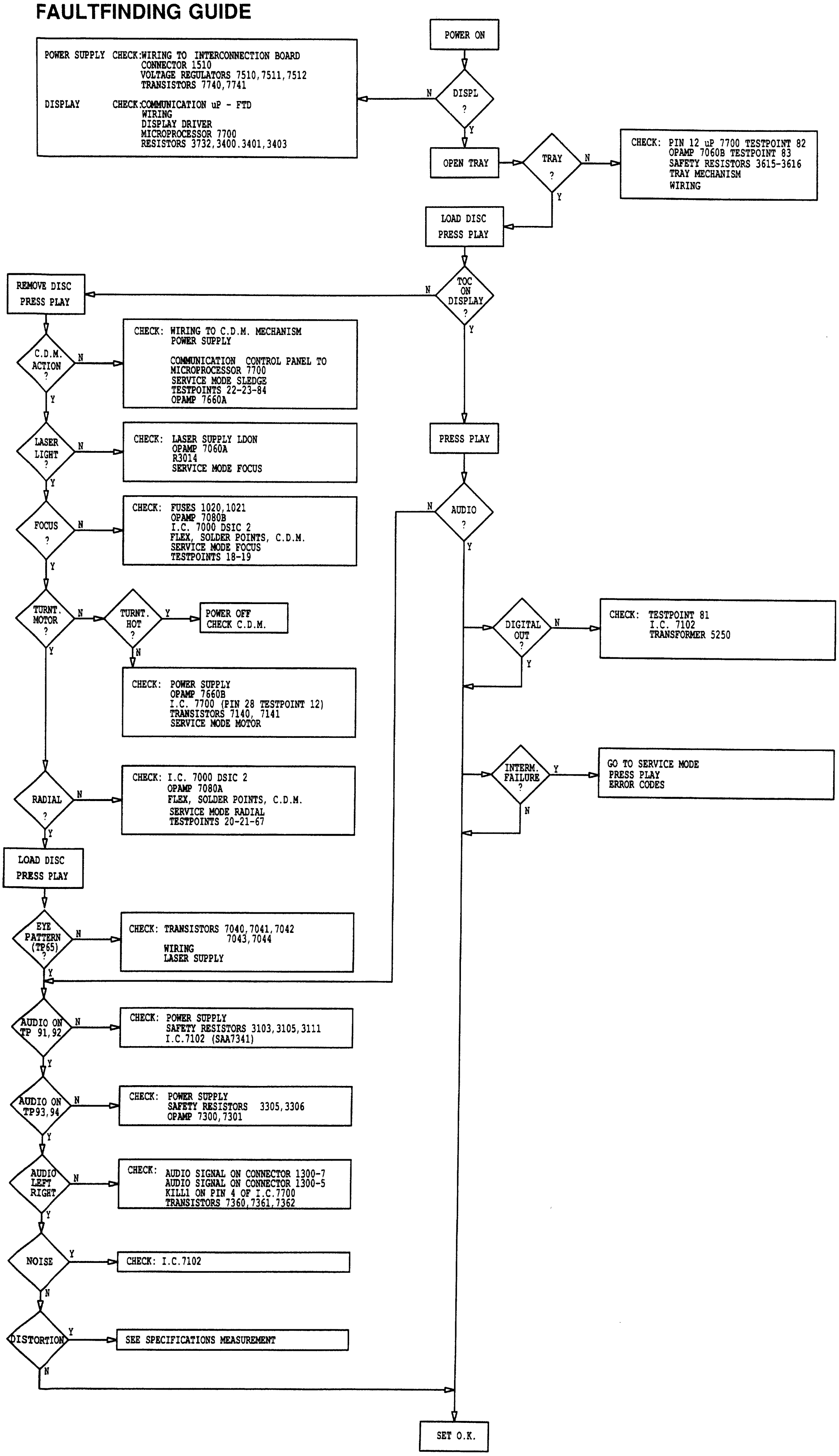
1002	D10	2124	H4	3082	G7	3717	C8	9035	E11
1010	F5	2125	E4	3085	I6	3718	C7	9036	G10
1011	H5	2140	C10	3086	E9	3719	C8	9037	G10
1020	F6	2141	D9	3087	H7	3720	C9	9038	I8
1021	H5	2253	E2	3100	E4	3721	C9	9039	I7
1052	F9	2300	D4	3101	F3	3722	C7	9040	H6
1070	B12	2301	D4	3102	E4	3723	C8	9041	H6
1071	B8	2302	D3	3103	E4	3724	C8	9043	I5
1250	D2	2303	D3	3105	I5	4000	B12	9044	I4
1300	B4	2304	C6	3106	E5	4001	G6	9045	G6
1500	B3	2305	D3	3109	E3	4002	H10	9046	F6
1570	H4	2306	D3	3110	H5	4003	I12	9047	F6
1700	B7	2309	D5	3111	F5	4004	I9	9048	E7
2000	G10	2310	D5	3112	E4	4104	F5	9049	D8
2001	F10	2311	C5	3117	F4	4105	C11	9050	C5
2003	F11	2312	C4	3118	G5	4106	F2	9051	E2
2004	F11	2313	B4	3119	E6	4107	F3	9052	E2
2005	F11	2500	C2	3140	E12	4108	F4	9053	D5
2007	G10	2501	D3	3141	D11	4109	I4	9054	D11
2008	F10	2502	C2	3142	D9	4200	I5	9055	D3
2008	F10	2503	B2	3143	C10	4302	C4	9056	D4
2009	E10	2504	C2	3144	E8	4600	F7	9057	E4
2010	F12	2550	C6	3146	E6	4700	C6		
2011	D10	2610	F7	3147	D9	4701	C9		
2012	C12	2611	F6	3148	D9	5250	E2		
2015	F7	2612	B8	3255	F2	6103	E3		
2016	E12	2702	B6	3256	E3	6550	B6		
2017	E12	2703	B7	3300	E4	6660	C4		
2018	E12	2704	C9	3301	D4	7000	E11		
2019	B12	3000	F11	3302	E4	7040	I11		
2040	H9	3001	F11	3303	E3	7041	I11		
2041	H10	3002	F11	3304	E3	7042	I10		
2042	H10	3003	F11	3305	D3	7043	I9		
2043	I9	3004	F10	3306	C3	7044	H9		
2044	I10	3005	F10	3307	D5	7060	E7		
2045	G9	3006	E8	3308	D5	7080	H8		
2046	G9	3007	E12	3309	D5	7101	I3		
2047	G10	3008	F12	3310	D5	7102	G3		
2048	G10	3009	E10	3311	D5	7140	D9		
2049	G9	3010	F9	3312	C4	7141	D9		
2050	G10	3011	E10	3313	C5	7300	D3		
2051	G10	3012	E12	3314	C4	7301	D5		
2052	G9	3013	D12	3315	C5	7360	C3		
2060	C12	3014	F7	3320	D4	7361	C5		
2061	B11	3015	D10	3321	D4	7362	C3		
2062	C12	3016	I5	3322	D4	7500	C3		
2063	C12	3017	F10	3323	C4	7550	D7		
2064	D12	3040	H8	3325	C5	7660	C11		
2065	C12	3041	I11	3326	D5	7700	C8		
2066	C10	3042	H10	3327	C5	9000	C2		
2070	D10	3043	H10	3328	C5	9001	C3		
2071	F8	3044	I10	3360	C4	9003	D5		
2072	H7	3045	I10	3361	C4	9004	E5		
2080	G8	3046	I11	3501	C2	9005	B5		
2081	H7	3047	I10	3502	B3	9006	B6		
2082	I7	3048	I10	3550	D6	9007	B6		
2083	I8	3049	H10	3551	D6	9008	B6		
2084	H7	3050	I9	3552	C7	9009	B6		
2085	F9	3051	I9	3553	C5	9010	F3		
2086	D10	3052	I9	3610	F7	9011	F4		
2101	E3	3053	H9	3611	D7	9012	E5		
2102	E3	3054	H9	3612	F7	9013	E6		
2103	I4	3055	G9	3613	G7	9014	D6		
2104	I3	3056	G10	3614	E7	9015	D6		
2105	E3	3057	G10	3615	F6	9016	D6		
2106	F3	3058	H9	3616	E6	9017	E6		
2107	E4	3060	D11	3617	B8	9018	D7		
2108	F3	3061	D12	3662	C4	9019	D7		
2109	E4	3062	D12	3663	C4	9020	D8		
2110	F3	3063	D12	3664	C4	9021	D8		
2111	E3	3064	C10	3665	C4	9022	D8		
2112	G2	3065	B12	3700	C7	9023	E8		
2114	I4	3066	B10	3701	C6	9024	E9		
2115	H4	3067	B10	3706	C9	9025	B10		
2116	I4	3070	H7	3707	C9	9026	C10		
2117	F4	3071	E11	3708	C10	9027	C10		
2118	G5	3072	I7	3710	C7	9028	C11		
2119	F4	3073	F9	3711	C8	9029	B11		
2120	F4	3074	G7	3713	C8	9031	D11		
2121	F4	3075	I6	3714	C7	9032	E11		
2122	G4	3080	E11	3715	C8	9033	E12		
2123	F4	3081	H7	3716	C7	9034	E12		

START UP PROCEDURE


POWER ON
SLEDGE INSIDE ?
N
CHECK SL
SL OUT
Y
LASERLIGHT
N
CHECK LDON
Y
FOCUSSING
N
CHECK FO
FOC+
FOC-
Y
DISC ROTATION OK?
N
CHECK PWMA
HM
Y
TRACK FOLLOWING
N
CHECK OTD
RA
RAD+
RAD-
Y
PLAY KEY ACTUATED
JUMP TO TRACK 1
N
CHECK HF
HFI
QRA
QDA
QCL
Y
START UP PROCEDURE OK

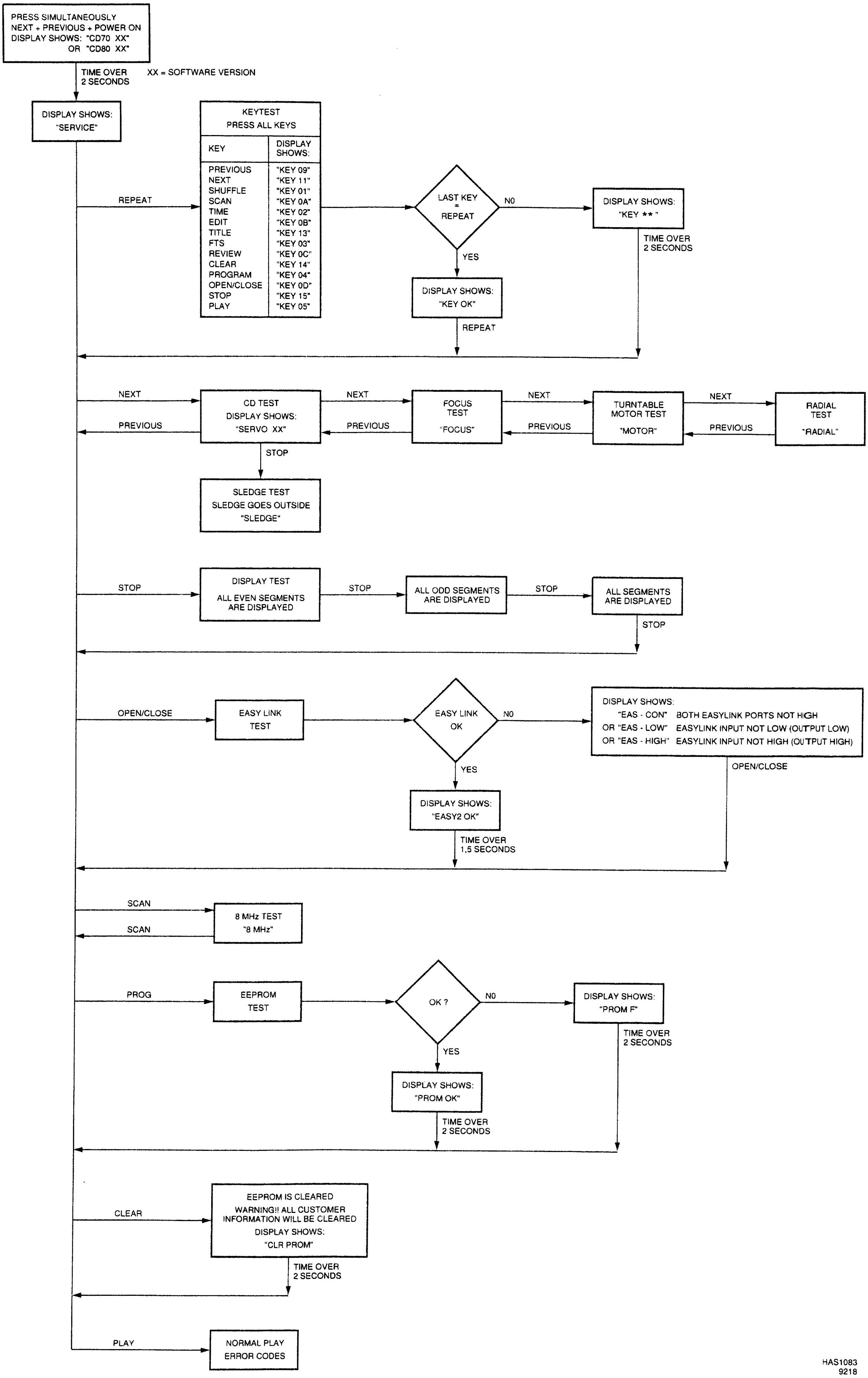
HAS1027
9214

FAULTFINDING GUIDE


POWER ON
DISPL ?
N
Y
POWER SUPPLY CHECK:WIRING TO INTERCONNECTION BOARD
CONNECTOR 1510
VOLTAGE REGULATORS 7510,7511,7512
TRANSISTORS 7740,7741
DISPLAY CHECK:COMMUNICATION uP - FTD
WIRING
DISPLAY DRIVER
MICROPROCESSOR 7700
RESISTORS 3732,3400.3401,3403
OPEN TRAY
TRAY ?
N
Y
CHECK: PIN 12 uP 7700 TESTPOINT 82
OPAMP 7060B TESTPOINT 83
SAFETY RESISTORS 3615-3616
TRAY MECHANISM
WIRING
LOAD DISC
PRESS PLAY
TOC ON DISPLAY ?
N
Y
REMOVE DISC
PRESS PLAY
C.D.M. ACTION ?
N
Y
CHECK: WIRING TO C.D.M. MECHANISM
POWER SUPPLY
COMMUNICATION CONTROL PANEL TO
MICROPROCESSOR 7700
SERVICE MODE SLEDGE
TESTPOINTS 22-23-84
OPAMP 7660A
LASER LIGHT ?
N
Y
CHECK: LASER SUPPLY LDON
OPAMP 7060A
R3014
SERVICE MODE FOCUS
FOCUS ?
N
Y
CHECK: FUSES 1020,1021
OPAMP 7080B
I.C. 7000 DSIC 2
FLEX, SOLDER POINTS, C.D.M.
SERVICE MODE FOCUS
TESTPOINTS 18-19
TURNT. MOTOR ?
N
Y
TURNT. HOT ?
Y
N
POWER OFF
CHECK C.D.M.
CHECK: POWER SUPPLY
OPAMP 7660B
I.C. 7700 (PIN 28 TESTPOINT 12)
TRANSISTORS 7140, 7141
SERVICE MODE MOTOR
RADIAL ?
N
Y
CHECK: I.C. 7000 DSIC 2
OPAMP 7080A
FLEX, SOLDER POINTS, C.D.M.
SERVICE MODE RADIAL
TESTPOINTS 20-21-67
LOAD DISC
PRESS PLAY
EYE PATTERN (TP65) ?
N
Y
CHECK: TRANSISTORS 7040,7041,7042
7043,7044
WIRING
LASER SUPPLY
AUDIO ON TP 91,92
N
Y
CHECK: POWER SUPPLY
SAFETY RESISTORS 3103,3105,3111
I.C.7102 (SAA7341)
AUDIO ON TP93,94
N
Y
CHECK: POWER SUPPLY
SAFETY RESISTORS 3305,3306
OPAMP 7300,7301
AUDIO LEFT RIGHT
N
Y
CHECK: AUDIO SIGNAL ON CONNECTOR 1300-7
AUDIO SIGNAL ON CONNECTOR 1300-5
KILL1 ON PIN 4 OF I.C.7700
TRANSISTORS 7360,7361,7362
NOISE
Y
N
CHECK: I.C.7102
DISTORTION
Y
N
SEE SPECIFICATIONS MEASUREMENT
PRESS PLAY
AUDIO ?
N
Y
DIGITAL OUT ?
N
Y
CHECK: TESTPOINT 81
I.C. 7102
TRANSFORMER 5250
INTERM. FAILURE ?
Y
N
GO TO SERVICE MODE
PRESS PLAY
ERROR CODES
SET O.K.

HAS1080
9216

SERVICE TEST PROGRAM


PRESS SIMULTANEOUSLY
NEXT + PREVIOUS + POWER ON
DISPLAY SHOWS: "CD70 XX"
OR "CD80 XX"
TIME OVER
2 SECONDS
XX = SOFTWARE VERSION
DISPLAY SHOWS:
"SERVICE"
REPEAT
KEYTEST
PRESS ALL KEYS
LAST KEY
=
REPEAT
NO
DISPLAY SHOWS:
"KEY ** "
TIME OVER
2 SECONDS
YES
DISPLAY SHOWS:
"KEY OK"
REPEAT
NEXT
PREVIOUS
CD TEST
DISPLAY SHOWS:
"SERVO XX"
NEXT
PREVIOUS
FOCUS
TEST
"FOCUS"
NEXT
PREVIOUS
TURNTABLE
MOTOR TEST
"MOTOR"
NEXT
PREVIOUS
RADIAL
TEST
"RADIAL"
STOP
SLEDGE TEST
SLEDGE GOES OUTSIDE
"SLEDGE"
STOP
DISPLAY TEST
ALL EVEN SEGMENTS
ARE DISPLAYED
STOP
ALL ODD SEGMENTS
ARE DISPLAYED
STOP
ALL SEGMENTS
ARE DISPLAYED
STOP
OPEN/CLOSE
EASY LINK
TEST
EASY LINK
OK
NO
DISPLAY SHOWS:
"EAS - CON" BOTH EASYLINK PORTS NOT HIGH
OR "EAS - LOW" EASYLINK INPUT NOT LOW (OUTPUT LOW)
OR "EAS - HIGH" EASYLINK INPUT NOT HIGH (OUTPUT HIGH)
OPEN/CLOSE
YES
DISPLAY SHOWS:
"EASY2 OK"
TIME OVER
1,5 SECONDS
SCAN
SCAN
8 MHz TEST
"8 MHz"
PROG
EEPROM
TEST
OK ?
NO
DISPLAY SHOWS:
"PROM F"
TIME OVER
2 SECONDS
YES
DISPLAY SHOWS:
"PROM OK"
TIME OVER
2 SECONDS
CLEAR
EEPROM IS CLEARED
WARNING!! ALL CUSTOMER
INFORMATION WILL BE CLEARED
DISPLAY SHOWS:
"CLR PROM"
TIME OVER
2 SECONDS
PLAY
NORMAL PLAY
ERROR CODES

KEY	DISPLAY SHOWS:
PREVIOUS	"KEY 09"
NEXT	"KEY 11"
SHUFFLE	"KEY 01"
SCAN	"KEY 0A"
TIME	"KEY 02"
EDIT	"KEY 0B"
TITLE	"KEY 13"
FTS	"KEY 03"
REVIEW	"KEY 0C"
CLEAR	"KEY 14"
PROGRAM	"KEY 04"
OPEN/CLOSE	"KEY 0D"
STOP	"KEY 15"
PLAY	"KEY 05"

HAS1083
9218

ERROR CODE TABLE

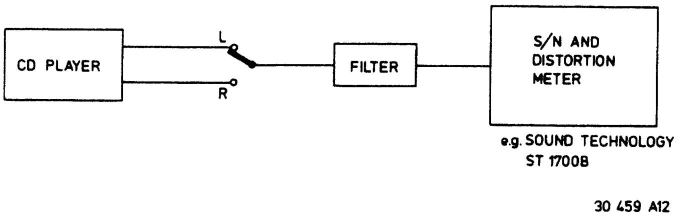
SYSTEM ERRORS

ERR 1002	Focus error, no disc.
ERR 1007	Subcode error, no valid subcode.
ERR 1008	TOC error, out of lead-in area while reading TOC
ERR 1009	CD4+ decoder(SAA7341) error.
ERR 1010	Radial error.
ERR 1012	Fatal sledge error
ERR 1013	Turntable motor error

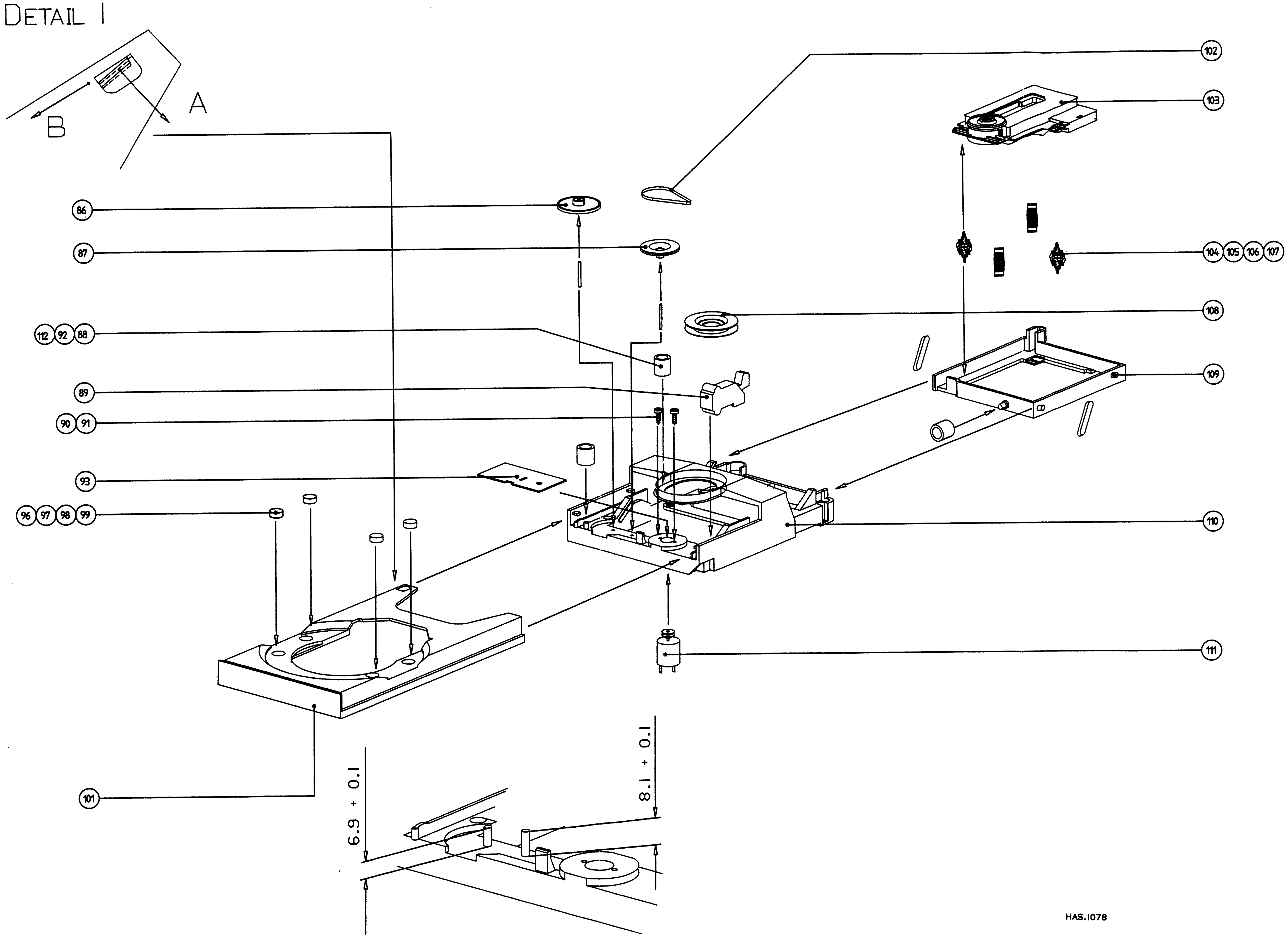
SPECIFICATIONS MEASUREMENT

SIGNAL	AUDIO SIGNALS DISC 1	M.P.	REMARKS
ANALOG OUT LEFT 1300 - 7	TOTAL HARMONIC DISTORTION TRACKS 10 - 23	FILTER OUTPUT	SEE TECHNICAL DATA SEE DRAWING
ANALOG OUT RIGHT 1300 - 5			
ANALOG OUT LEFT 1300 - 7	SIGNAL-TO-NOISE RATIO TRACK 1 REFERENCE LEVEL TRACK 49	FILTER OUTPUT	SEE TECHNICAL DATA SEE DRAWING
ANALOG OUT RIGHT 1300 - 5			

FILTER = 13th ORDER FILTER 4822 395 30204


CD PLAYER
L
R
FILTER
S/N AND DISTORTION METER
e.g. SOUND TECHNOLOGY ST 1700B
30 459 A12

LOADER


DETAIL I
A
B
102
103
86
87
104 105 106 107
108
112 92 88
89
109
90 91
93
96 97 98 99
110
111
101
6.9 + 0.1
8.1 + 0.1
HAS.1078

MECHANICAL PARTSLIST

Partslist cabinet

2+8+9+10+51:	4822 444 40562	FRONT ASSY CD070
	4822 444 40556	FRONT ASSY CD080
21	4822 459 11078	WORDMARK
22	4822 450 61922	WINDOW
71	4822 444 40561	TRAYFRONT
255+256+257+258	4822 462 41933	FOOT

Partslist loader

86	4822 528 81464	DRIVE PINION
87	4822 528 81465	PULLEY
88+92+112	4822 325 60379	DAMPING GROMMET
89	4822 276 13222	SWITCH
93	4822 444 60816	COVER PLATE
96+97+98+99	4822 462 41902	ORNAMENTAL TULE
101	4822 444 50679	SLIDE
102	4822 358 31168	BELT
103	4822 691 30278	CDM12
104+105+106+107	4822 325 50215	SUSPENSION
108	4822 402 61412	CLAMPER ASSY
109	4822 464 50895	SUBCHASSIS
110	4822 444 50678	CHASSIS
111	4822 361 21492	MOTOR

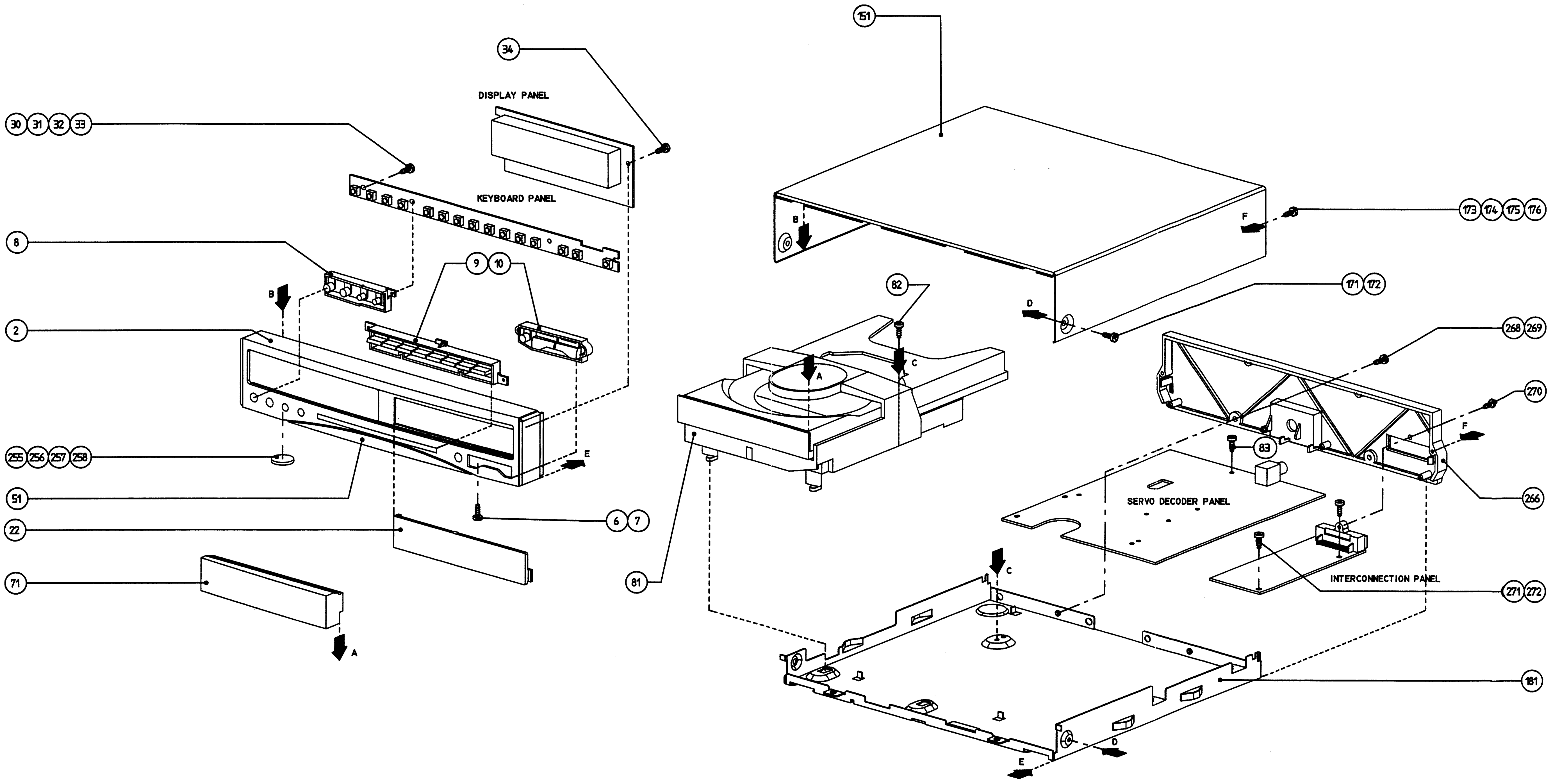
The following parts are only available during production period on special request.

151	Cover
181	Frame
266	Back plate

Screws

Taptite	M3x6:	6,7 82 171,172 268,269 271,272
Plastite	M2x4:	90,91
Plastite	M3x8:	30,31,32,33 34 173,174,175,176 270

EXPLODED VIEW


151
34
DISPLAY PANEL
30 31 32 33
KEYBOARD PANEL
173 174 175 176
F
B
8
9 10
82
171 172
D
C
268 269
B
2
A
270
F
83
E
255 256 257 258
SERVO DECODER PANEL
266
51
6 7
22
C
INTERCONNECTION PANEL
271 272
81
71
A
181
D
E

HAS.1073
AHT31.92.0000

SERVO & DECODER PANEL

MISCELLANEOUS

1002	4822 242 73557	RESONATOR 8,46MHz
1020	4822 071 51601	FUSE 160mA
1021	4822 071 51601	FUSE 160mA
1250	4822 267 30933	DIG.OUT SOCKET
1570	4822 242 81151	CRYSTAL 16,9344MHz
1700	4822 242 72527	RESONATOR 4MHz

CAPACITORS

2000	5322 122 31865	1,5nF 10% 63V
2001	5322 116 80853	560pF 5% 63V
2003	4822 122 32575	220pF 10% 500V
2004	4822 122 32575	220pF 10% 500V
2005	4822 122 32575	220pF 10% 500V
2006	4822 122 32575	220pF 10% 500V
2007	4822 122 32575	220pF 10% 500V
2008	4822 122 32575	220pF 10% 500V
2009	4822 122 33496	100nF 10% 63V
2010	5322 124 21643	22µF 20% 40V
2011	4822 122 33496	100nF 10% 63V
2012	4822 124 40272	33µF 20% 16V
2015	5322 124 21643	22µF 20% 40V
2016	4822 122 33496	100nF 10% 63V
2017	5322 124 21643	22µF 20% 40V
2018	4822 122 33496	100nF 10% 63V
2019	4822 122 33809	22nF 20% 50V
2040	5322 122 32654	22nF 10% 63V
2041	4822 126 10326	180pF 5% 50V
2042	5322 124 21643	22µF 20% 40V
2043	5322 122 31863	330pF 5% 50V
2044	4822 126 10326	180pF 5% 50V
2045	5322 122 32452	47pF 5% 63V
2046	5322 122 32452	47pF 5% 63V
2047	5322 122 32531	100pF 5% 50V
2048	5322 122 32965	18pF 5%NPO 50V
2049	4822 126 10326	180pF 5% 50V
2050	4822 126 10326	180pF 5% 50V
2051	5322 122 31863	330pF 5% 50V
2052	5322 124 21643	22µF 20% 40V
2060	4822 122 33496	100nF 10% 63V
2061	4822 122 33496	100nF 10% 63V
2062	4822 124 40272	33µF 20% 16V
2063	4822 124 40272	33µF 20% 16V
2064	4822 122 33342	33nF 10% 63V
2065	4822 122 33496	100nF 10% 63V
2066	4822 122 33175	2,2nF 20% 50V
2070	5322 126 10223	4,7nF 10% 63V
2071	4822 122 33496	100nF 10% 63V
2072	4822 126 10326	180pF 5% 50V
2080	4822 122 33496	100nF 10% 63V
2081	5322 124 21643	22µF 20% 40V
2082	4822 122 33496	100nF 10% 63V
2083	5322 124 21643	22µF 20% 40V
2084	4822 126 10326	180pF 5% 50V
2085	4822 122 33496	100nF 10% 63V
2086	5322 126 10465	3,9nF 10% 63V
2101	5322 122 32452	47pF 5% 63V
2102	4822 122 33175	2,2nF 20% 50V
2103	4822 124 40849	330µF 20% 16V
2104	4822 122 33496	100nF 10% 63V
2105	5322 121 42661	330nF 5% 63V
2106	4822 122 33496	100nF 10% 63V
2107	4822 124 41584	100µF 20% 10V
2108	4822 122 33809	22nF 20% 50V
2109	4822 124 40242	1µF 20% 63V
2110	5322 122 32659	33pF 5% 50V
2111	5322 121 42386	100nF 5% 63V
2112	4822 122 33496	100nF 10% 63V
2114	5322 122 32658	22pF 5% 50V
2115	5322 122 32658	22pF 5% 50V
2116	4822 124 40242	1µF 20% 63V
2117	5322 126 10223	4,7nF 10% 63V
2118	5322 126 10223	4,7nF 10% 63V
2119	4822 124 41584	100µF 20% 10V
2120	4822 122 33496	100nF 10% 63V
2121	4822 122 33496	100nF 10% 63V
2122	4822 124 40849	330µF 20% 16V
2123	4822 122 33496	100nF 10% 63V
2124	5322 122 32659	33pF 5% 50V
2125	5322 126 10223	4,7nF 10% 63V
2140	4822 122 33496	100nF 10% 63V
2141	4822 122 32542	47nF 10% 63V
2253	4822 122 33105	56nF 10% 63V
2300	5322 116 80853	560pF 5% 63V
2301	4822 124 40272	33µF 20% 16V
2302	4822 124 40246	4,7µF 20% 63V
2303	4822 122 33216	270pF 5% 50V
2304	4822 124 40272	33µF 20% 16V
2305	4822 124 40246	4,7µF 20% 63V
2306	4822 122 33496	100nF 10% 63V
2309	4822 122 33216	270pF 5% 50V
2310	5322 116 80853	560pF 5% 63V
2311	4822 124 40246	4,7µF 20% 63V
2312	4822 122 33219	1,8nF 10% 50V
2313	4822 122 33219	1,8nF 10% 50V
2500	4822 124 80148	2200µF 20% 16V
2501	4822 122 33496	100nF 10% 63V
2502	4822 124 41853	1000µF 16V
2503	4822 122 33496	100nF 10% 63V
2504	4822 122 33496	100nF 10% 63V
2550	4822 122 33175	2,2nF 20% 50V

2610	4822 122 33496	100nF 10% 63V
2611	4822 122 33496	100nF 10% 63V
2612	4822 122 33496	100nF 10% 63V
2702	4822 124 40272	33µF 20% 16V
2703	4822 122 33809	22nF 20% 50V
2704	4822 122 33175	2,2nF 20% 50V

RESISTORS

3000	4822 050 21003	10k 1% 0,6W
3001	4822 050 21003	10k 1% 0,6W
3002	4822 050 21003	10k 1% 0,6W
3003	4822 050 21003	10k 1% 0,6W
3004	4822 050 21003	10k 1% 0,6W
3005	4822 050 21003	10k 1% 0,6W
3006	4822 051 20103	10k 5% 0,1W
3007 ▲	4822 052 10338	3Ω3 5% 0,33W
3008 ▲	4822 052 10338	3Ω3 5% 0,33W
3009	4822 051 20105	1M 5% 0,1W
3010	4822 051 20103	10k 5% 0,1W
3011	4822 051 20103	10k 5% 0,1W
3012	4822 051 10102	1k 2% 0,25W
3013	4822 051 10102	1k 2% 0,25W
3014 ▲	4822 052 10478	4Ω7 5% 0,33W
3015	4822 050 21002	1k 1% 0,6W
3016	4822 050 21002	1k 1% 0,6W
3017	4822 051 10102	1k 2% 0,25W
3040	4822 051 10101	100Ω 2% 0,25W
3041	4822 051 20393	39k 5% 0,1W
3042	4822 051 20334	330k 5% 0,1W
3043	4822 051 20303	30k 5% 0,1W
3044	4822 051 10102	1k 2% 0,25W
3045	4822 051 20101	100Ω 5% 0,1W
3046	4822 051 10102	1k 2% 0,25W
3047	4822 051 20434	430k 5% 0,1W
3048	4822 051 20101	100Ω 5% 0,1W
3049	4822 050 24301	430Ω 1% 0,6W
3050	4822 051 20434	430k 5% 0,1W
3051	4822 051 20182	1k8 5% 0,1W
3052	4822 051 20182	1k8 5% 0,1W
3053	4822 051 20362	3k6 5% 0,1W
3054	4822 051 20101	100Ω 5% 0,1W
3055	4822 051 20124	120k 5% 0,1W
3056	4822 050 21204	120k 1% 0,6W
3057	4822 050 25603	56k 1% 0,6W
3058	4822 050 21002	1k 1% 0,6W
3060	4822 051 20103	10k 5% 0,1W
3061	4822 051 20682	6k8 5% 0,1W
3062	4822 116 52244	15k 5% 0,5W
3063	4822 051 20103	10k 5% 0,1W
3064	4822 116 52244	15k 5% 0,5W
3065 ▲	4822 052 10229	22Ω 5% 0,33W
3066 ▲	4822 052 10108	1Ω 5% 0,33W
3067 ▲	4822 052 10108	1Ω 5% 0,33W
3070	4822 051 20153	15k 5% 0,1W
3071	4822 051 20103	10k 5% 0,1W
3072	4822 050 26802	6k8 1% 0,6W
3073 ▲	4822 052 10229	22Ω 5% 0,33W
3074	4822 116 52244	15k 5% 0,5W
3075	4822 050 21003	10k 1% 0,6W
3080	4822 051 20682	6k8 5% 0,1W
3081	4822 050 24702	4k7 1% 0,6W
3082	4822 051 20153	15k 5% 0,1W
3083 ▲	4822 052 10108	1Ω 5% 0,33W
3084 ▲	4822 052 10108	1Ω 5% 0,33W
3085	4822 050 21003	10k 1% 0,6W
3086 ▲	4822 052 10229	22Ω 5% 0,33W
3087	4822 116 52244	15k 5% 0,5W
3100	4822 050 22202	2k2 1% 0,6W
3101	4822 051 20223	22k 5% 0,1W
3102	4822 051 20223	22k 5% 0,1W
3103 ▲	4822 052 10338	3Ω3 5% 0,33W
3105 ▲	4822 052 10338	3Ω3 5% 0,33W
3106	4822 051 10102	1k 2% 0,25W
3109	4822 051 20222	2k2 5% 0,1W
3110	4822 051 20224	220k 5% 0,1W
3111 ▲	4822 052 10229	22Ω 5% 0,33W
3112	4822 050 22205	2M2 1% 0,6W
3117	4822 051 20182	1k8 5% 0,1W
3118	4822 051 20182	1k8 5% 0,1W
3119	4822 051 10561	560Ω 2% 0,25W
3140	4822 116 52234	100k 5% 0,5W
3141	4822 051 20104	100k 5% 0,1W
3142	4822 050 24703	47k 1% 0,6W
3143 ▲	4822 052 10229	22Ω 5% 0,33W
3144	4822 051 20223	22k 5% 0,1W
3146	4822 050 21003	10k 1% 0,6W
3147	4822 051 20392	3k9 5% 0,1W
3148	4822 051 20473	47k 5% 0,1W
3255	4822 051 10561	560Ω 2% 0,25W
3256	4822 051 20621	620Ω 5% 0,1W
3300	4822 051 20104	100k 5% 0,1W
3301	4822 051 20273	27k 5% 0,1W
3302	4822 051 20332	3k3 5% 0,1W
3303	4822 051 20123	12k 5% 0,1W
3304	4822 051 20123	12k 5% 0,1W
3305 ▲	4822 052 10229	22Ω 5% 0,33W
3306 ▲	4822 052 10229	22Ω 5% 0,33W
3307	4822 051 20332	3k3 5% 0,1W
3308	4822 051 20123	12k 5% 0,1W
3309	4822 051 20104	100k 5% 0,1W
3310	4822 051 20273	27k 5% 0,1W
3311	4822 051 20123	12k 5% 0,1W
3312	4822 050 22203	22k 1% 0,6W
3313	4822 051 20223	22k 5% 0,1W

3314		4822 050 21002	1k	1%	0,6W
3315		4822 050 21002	1k	1%	0,6W
3320		4822 116 83933	15k	1%	0,1W
3321		4822 116 83933	15k	1%	0,1W
3322		4822 116 83933	15k	1%	0,1W
3323		4822 116 83933	15k	1%	0,1W
3325		4822 116 83933	15k	1%	0,1W
3326		4822 116 83933	15k	1%	0,1W
3327		4822 116 83933	15k	1%	0,1W
3328		4822 116 83933	15k	1%	0,1W
3360		4822 051 10102	1k	2%	0,25W
3361		4822 051 10102	1k	2%	0,25W
3501	▲	4822 052 10108	1Ω	5%	0,33W
3502	▲	4822 052 10108	1Ω	5%	0,33W
3550		4822 051 20561	560Ω	5%	0,1W
3551		4822 051 10102	1k	2%	0,25W
3552		4822 051 20223	22k	5%	0,1W
3553		4822 051 10102	1k	2%	0,25W
3610		4822 051 20123	12k	5%	0,1W
3611		4822 116 52303	8k2	5%	0,5W
3612		4822 051 20123	12k	5%	0,1W
3613		4822 051 20123	12k	5%	0,1W
3614		4822 051 20123	12k	5%	0,1W
3615	▲	4822 052 10108	1Ω	5%	0,33W
3616	▲	4822 052 10108	1Ω	5%	0,33W
3617	▲	4822 052 10229	22Ω	5%	0,33W
3662		4822 051 20103	10k	5%	0,1W
3663		4822 051 20103	10k	5%	0,1W
3664		4822 051 20103	10k	5%	0,1W
3665		4822 051 20561	560Ω	5%	0,1W
3700		4822 051 20224	220k	5%	0,1W
3701	▲	4822 052 10338	3Ω3	5%	0,33W
3706		4822 051 20103	10k	5%	0,1W
3707		4822 051 20103	10k	5%	0,1W
3708		4822 051 20103	10k	5%	0,1W
3710		4822 051 20103	10k	5%	0,1W
3711		4822 051 20332	3k3	5%	0,1W
3713		4822 051 20103	10k	5%	0,1W
3714		4822 051 20103	10k	5%	0,1W
3715		4822 051 20332	3k3	5%	0,1W
3716		4822 051 20103	10k	5%	0,1W
3717		4822 051 20103	10k	5%	0,1W
3718		4822 051 20103	10k	5%	0,1W
3719		4822 051 20103	10k	5%	0,1W
3720		4822 051 20103	10k	5%	0,1W
3721		4822 051 20103	10k	5%	0,1W
3722		4822 051 10102	1k	2%	0,25W
3723		4822 051 10102	1k	2%	0,25W
3724		4822 051 10102	1k	2%	0,25W
4000		4822 051 10008	0Ω	5%	0,25W
4001		4822 051 10008	0Ω	5%	0,25W
4002		4822 051 10008	0Ω	5%	0,25W
4003		4822 051 10008	0Ω	5%	0,25W
4004		4822 051 10008	0Ω	5%	0,25W
4104		4822 051 10008	0Ω	5%	0,25W
4105		4822 051 10008	0Ω	5%	0,25W
4106		4822 051 10008	0Ω	5%	0,25W
4107		4822 051 10008	0Ω	5%	0,25W
4108		4822 051 10008	0Ω	5%	0,25W
4109		4822 051 10008	0Ω	5%	0,25W
4200		4822 051 10008	0Ω	5%	0,25W
4302		4822 051 10008	0Ω	5%	0,25W
4600		4822 051 10008	0Ω	5%	0,25W
4700		4822 051 10008	0Ω	5%	0,25W
4701		4822 051 10008	0Ω	5%	0,25W

COILS

5250		4822 148 80281	DIG.OUT TRANSFORMER

DIODES

6103		4822 130 30621	1N4148
6550		4822 130 31981	BZX79-C3V9
6660		4822 130 34173	BZX79-C5V6

TRANSISTORS & IC's

7000		4822 209 31064	TDA1301T/N1
7040		4822 130 60887	BF840
7041	▲	5322 130 41982	BC848B
7042		5322 130 41983	BC858B
7043	▲	5322 130 41982	BC848B
7044	▲	5322 130 41982	BC848B
7060		4822 209 72587	TCA0372DP2-
7080		4822 209 72587	TCA0372DP2-
7101		4822 209 63925	FCB61C65L70T
7102		4822 209 30388	SAA7341GP
7140		5322 130 42012	BC858
7141		4822 130 61207	BC848
7300		4822 209 83274	NJM4560D
7301		4822 209 83274	NJM4560D
7360		4822 130 42804	BC817-25
7361		4822 130 42804	BC817-25
7362		5322 130 42012	BC858
7500	▲	4822 209 71579	TY40408
7550		5322 130 42012	BC858
7660		4822 209 72587	TCA0372DP2-
7700		4822 209 31055	MC 68HC05C8-ZC405039

CONTROL & DISPLAY PANEL

MISCELLANEOUS

	4822 256 91933	DISPLAY HOLDER
1422	4822 276 13114	TACT SWITCH
1423	4822 276 13114	TACT SWITCH
1424	4822 276 13114	TACT SWITCH
1425	4822 276 13114	TACT SWITCH
1426	4822 276 13114	TACT SWITCH
1427	4822 276 13114	TACT SWITCH
1428	4822 276 13114	TACT SWITCH
1429	4822 276 13114	TACT SWITCH(CD080)
1430	4822 276 13114	TACT SWITCH(CD080)
1431	4822 276 13114	TACT SWITCH
1432	4822 276 13114	TACT SWITCH
1433	4822 276 13114	TACT SWITCH
1434	4822 276 13114	TACT SWITCH
1435	4822 276 13114	TACT SWITCH
1436	4822 276 13114	TACT SWITCH
1437	4822 276 13114	TACT SWITCH(CD070)
1500	5322 242 73697	CRYSTAL 8MHz
1510	4822 267 60331	SOCKET CD IN/OUT

CAPACITORS

2400	4822 122 10176	4,7nF 10% 50V
2401	4822 122 10176	4,7nF 10% 50V
2402	4822 122 10166	22nF 30% 16V
2403	4822 122 10176	4,7nF 10% 50V
2410	4822 122 90111	NETWORK 7X100pF
2510	4822 124 41853	1000µF 16V
2511	4822 124 40433	47µF 20% 25V
2513	4822 124 40433	47µF 20% 25V
2514	4822 124 40433	47µF 20% 25V
2515	4822 124 40433	47µF 20% 25V
2516	4822 121 43187	27nF 5% 250V
2730	4822 122 10166	22nF 30% 16V
2740	4822 124 41506	47µF 20% 16V

RESISTORS

3400	▲	4822 052 10478	4Ω7 5% 0,33W
3401	▲	4822 052 10478	4Ω7 5% 0,33W
3402		4822 050 22201	220Ω 1% 0,6W
3403	▲	4822 052 10478	4Ω7 5% 0,33W
3404		4822 050 22203	22k 1% 0,6W
3405		4822 050 21002	1k 1% 0,6W
3406		4822 116 90842	NETWORK 7X10k
3409		4822 050 21003	10k 1% 0,6W(CD080)
3410		4822 050 21003	10k 1% 0,6W(CD070)
3732	▲	4822 052 10478	4Ω7 5% 0,33W
3740		4822 050 24703	47k 1% 0,6W
3741		4822 050 24703	47k 1% 0,6W
3742		4822 051 10101	100Ω 2% 0,25W
3743		4822 050 24703	47k 1% 0,6W
3744		4822 050 21803	18k 1% 0,6W
3745		4822 050 24703	47k 1% 0,6W
3746	▲	4822 052 10109	10Ω 5% 0,33W

COILS

5001	4822 157 51462	10µH
5002	4822 157 51462	10µH
5003	4822 157 51462	10µH
5004	4822 157 51462	10µH
5005	4822 157 51462	10µH
5500	4822 157 60363	ANTI INTERFERENCE COIL
5730	4822 157 51462	10µH

DIODES

6400	4822 130 31981	BZX79-C3V9
6740	4822 130 30621	1N4148

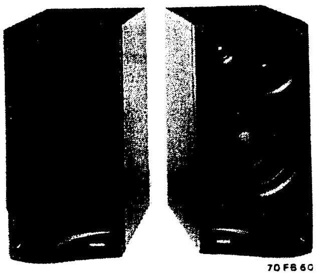
TRANSISTORS & IC's

7400	4822 130 91136	VFD-FUTABA-CD070-080
7401	4822 209 31517	TMP87CK70F...
7402	4822 130 40941	BC558
7403	4822 209 62524	X24C16P
7510	4822 209 80891	MC 78M05CT
7511	4822 209 62085	LM2940CT-12
7512	5322 209 85913	MC 7912CT
7740	4822 130 40941	BC558
7741	4822 130 40938	BC548

HiFi Loudspeakerbox - Programme

70FB60
70FB70
70FB80

Service
Service
Service


70FB60

Service Manual

TABLE OF CONTENTS:

Page

1. Introduction 1
2. Technical specifications 2 - 5
3. Dismantling instructions 6
4. Servicing hints 6
5. Wiring diagram 7
6. List of electrical parts 7
7. Exploded vieuw 8
8. List of mechanical parts 8
9. Engineers remarks 9

Published by Consumer Electronics Printed in The Netherlands ©Copyright reserved Subject to modification

(GB) 4822 725 24096

PHILIPS

1. INTRODUCTION:

How to use this manual?

- Diagram
  The numbers near the symbols correspond to the "Item numbers"

- Loudspeakers
  The loudspeakers are divided into:

- Tweeters	(for high tones)	TW
- Piezo	(for high tones)	Pi
- Woofers	(for low tones)	WO

  Next to the item number the 12-digit service codenumber of the loudspeaker is given.

- Capacitor, resistor, coil
  Next to the item number the service codenumber has been stated as well as the technical data of these components.

- The item numbers on the exploded vieuw shows the different mechanical parts which may be available as a service spare part.
  For their codenumbers and description see "list of mechanical parts".

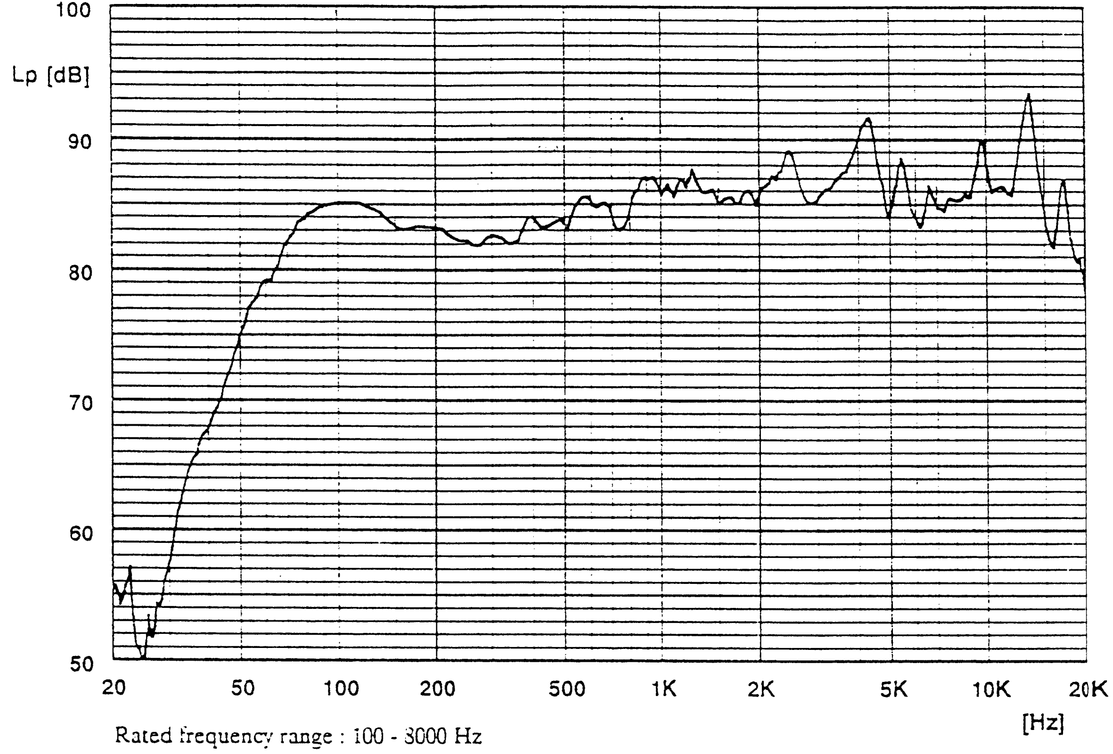
2. TECHNICAL SPECIFICATIONS:

	FB 60	FB 70	FB 80
2.1 General data:			
Type of system	3 way bass reflex	3 way bass reflex	3 way bass reflex
Acoustical volume	9,2 L	9,2 L	9,2 L
Total volume	16,2 L	16,2 L	16,2 L
Outside dimension W X H X D	172,5 X 345 X 272	172,5 X 345 X 272	172,5 X 345 X 272
Weight exclusive packaging	4,2 kg	4,4 kg	4,5 kg
2.2 Electro-acoustical data:			
Rated impedance	6 Ohm	6 Ohm	6 Ohm
Rated power PHC	30 Watt	50 Watt	60 Watt
Maximum power Pmax	50 Watt	90 Watt	100 Watt
Sensitivity	88 dB/W/1 m	88 dB/W/1 m	87 dB/W/1 m
Operating power	6,3 Watt	6,3 Watt	6,3 Watt
Resonance frequencies	35 & 90 Hz	35 & 100 Hz	35 & 100 Hz
Cross-over frequencies	2500 Hz	3000 Hz	2500 Hz
Frequency range	70 - 20 000 Hz	65 - 20 000 Hz	60 - 20 000 Hz
Sweep voltage	6 volts	6 volts	6 volts

Type : FB60
Nr : 60.01177

Thursday, January 23, 1992, 13.16h

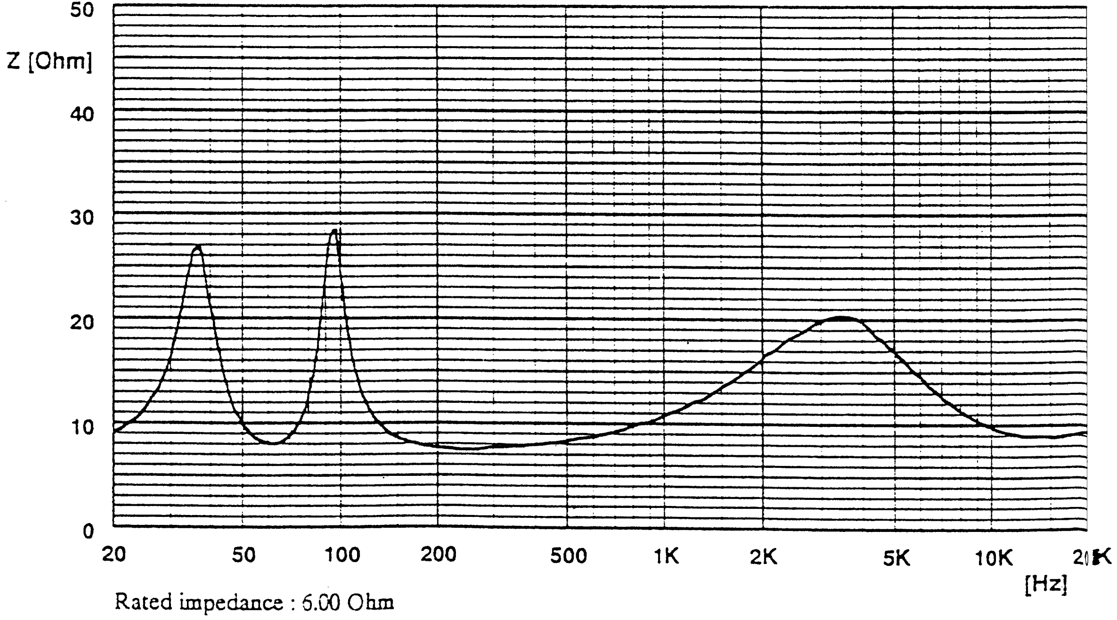
Measured at 1m with a power of 1.00 watts (Pref = 20 uPA).



Rated frequency range : 100 - 8000 Hz
Characteristic sensitivity : 85.6 dB (mean dB value 85.1 dB)

Effective frequency range : 58 - 20000 Hz
Maximum sensitivity in octave at 3253 Hz : 88.3 dB

Measured with a power of 50 milliwatts



Rated impedance : 6.00 Ohm
Coil resistance : 0.00 Ohm
Resonance frequency : 36.7 Hz
Impedance peaks : 93.8 Hz, 3400.0 Hz

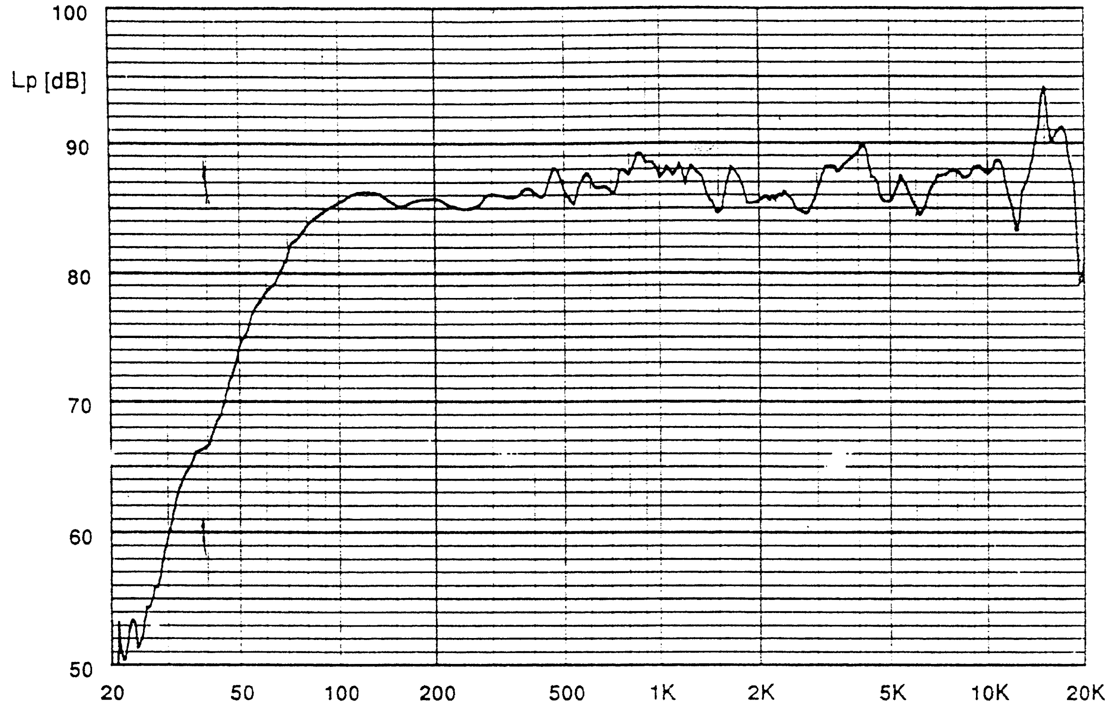
Type : FB70

Nr : 60.01092

Thursday, January 23, 1992, 13.13h

4

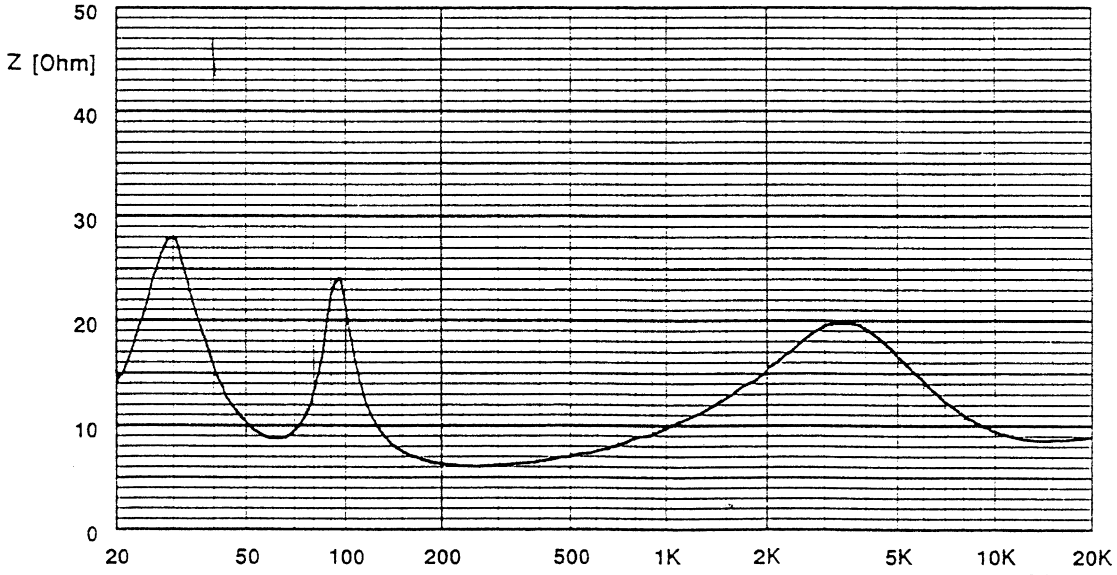
Measured at 1m with a power of 1.00 watts (Pref = 20 uPA)



Rated frequency range : 100 - 8000 Hz
Characteristic sensitivity : 86.7 dB (mean dB value 86.5 dB)

Effective frequency range : 66 - 18800 Hz
Maximum sensitivity in octave at 12728 Hz : 89.4 dB

Measured with a power of 50 milliwatts.

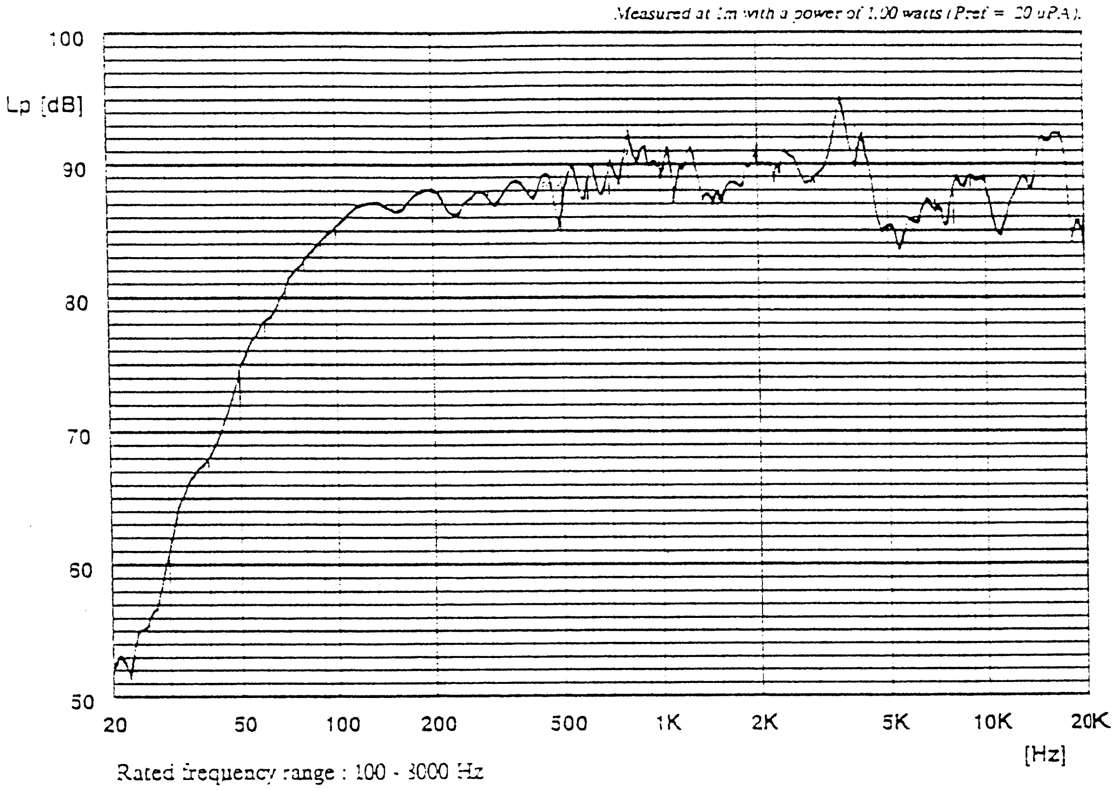


Rated impedance : 6.00 Ohm
Coil resistance : 0.00 Ohm
Resonance frequency : 29.7 Hz
Impedance peaks : 93.8 Hz, 3300.0 Hz

Type : FB80
Nr : 60.01114

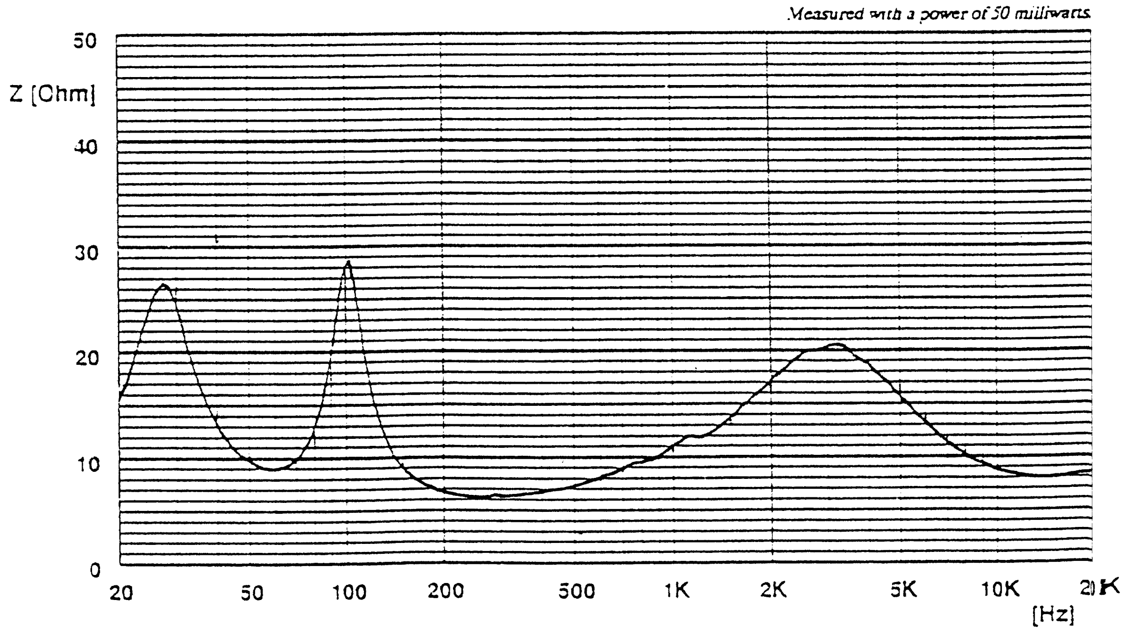
Friday, January 24, 1992, 13.51h

5



Rated frequency range : 100 - 3000 Hz
Characteristic sensitivity : 88.3 dB (mean dB value 88.4 dB)

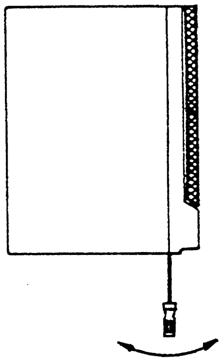
Effective frequency range : 72 - 20000 Hz
Maximum sensitivity in octave at 3111 Hz : 91.0 dB



Rated impedance : 8.00 Ohm
Coil resistance : 0.00 Ohm
Resonance frequency : 27.3 Hz
Impedance peaks : 100.0 Hz, 3200.0 Hz

3. DISMANTLING INSTRUCTIONS:

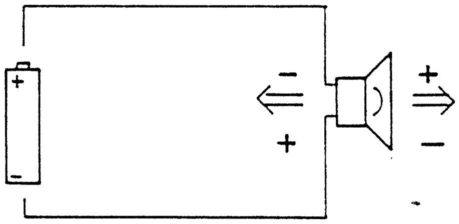
Remove the front of the loudspeakerbox (item 34 or 35) by pulling at the "front" edges.
If the frame isn't comming loose it could be usefull to use a flat screw-driver, and jerk the front loose at the bottom side of the box (see drawing).
Unscrew the speakers, and you have acces to the box.



4. SERVICING HINTS:

Checking the speaker polarity:

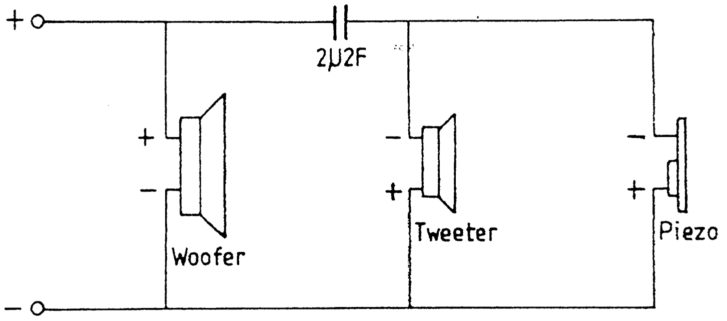
You can check the speaker polarity with a battery of 1,5 volts up to 3 volts.
When the speaker is connected "in phase", the speakercone is always moving forwards. It means the + of the battery is connected with the + of the speaker.



⟹ cone movement

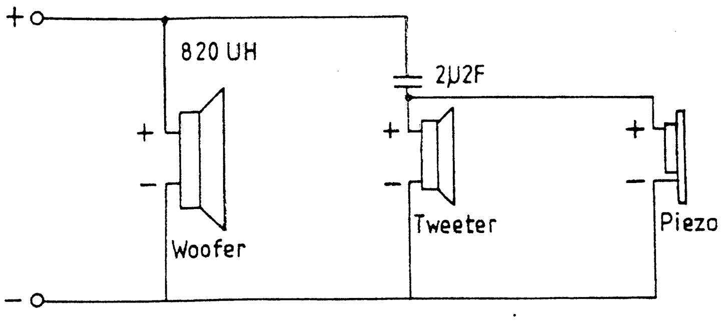
5. WIRING DIAGRAM - LIST OF ELECTRICAL PARTS

Type : FB70 FB60


+
–
2µ2F
+
–
Woofer
–
+
Tweeter
–
+
Piezo

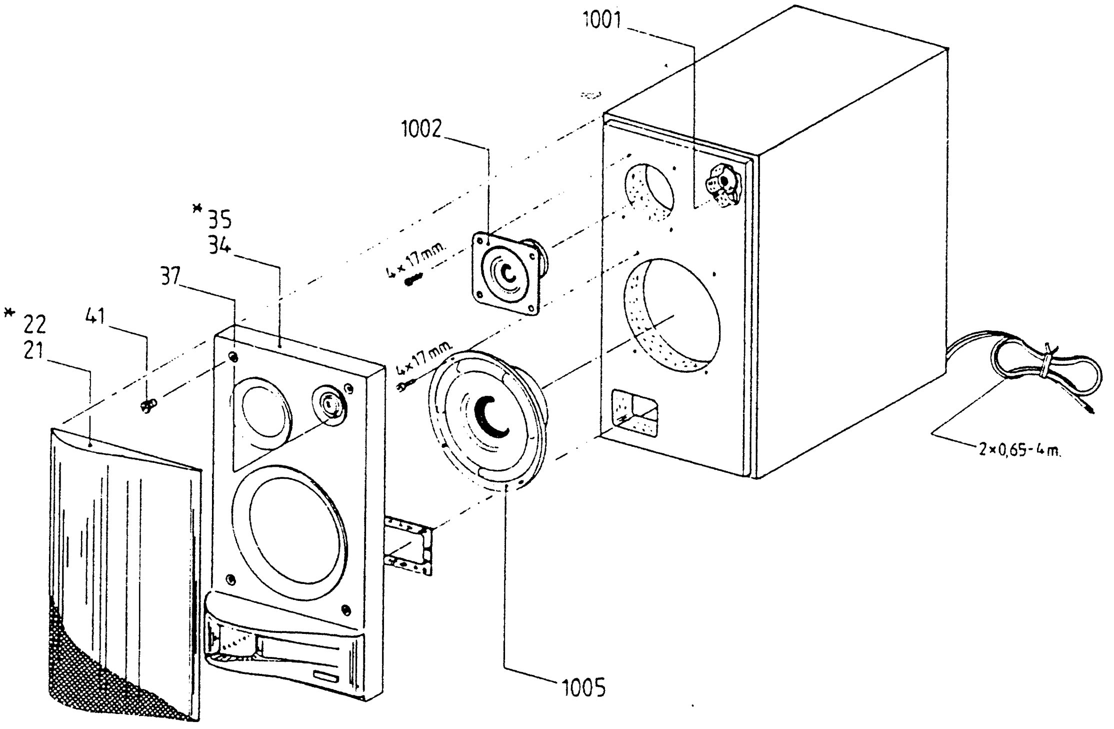
1001	4822 280 10259	PIEZO
1002	4822 240 70247	CT106FK
1005	4822 240 50326	13FK586
2001	4822 124 21435	2,2UF/100V-DC BIPOL

Type : FB80


+
–
820 UH
2µ2F
+
–
Woofer
+
–
Tweeter
+
–
Piezo

1001	4822 280 10259	PIEZO
1002	4822 240 70247	CT106FK
1005	4822 240 60331	AD 70654/W6DC
2001	4822 124 21435	2,2UF/100V-DC BIPOL

7. EXPLODED VIEUW


1001
1002
*35
34
37
41
*22
21
4×17mm.
4×17mm.
2×0,65-4m.
1005

8. LIST OF MECHANICAL PARTS

21	4822 458 40561	LEFT-VERSION
22	4822 458 40562	RIGHT-VERSION
34	4822 445 30238	LEFT-VERSION
35	4822 445 30239	RIGHT-VERSION
37	4822 240 80043	DOME
41	4822 325 80497	GROMMET

Service Information

1992-10-28

LOUDSPEAKER BOX 70/FB 60
70/FB 70
70/FB 80

A92 / 431

Product Service Group CE Audio

In the service manual (4822 725 24096) of Loudspeakerboxes 70 FB 60 - 70 FB 70 and 70 FB 80, the list of mechanical parts on page 8 should be replaced as mentioned below :

8. LIST OF MECHANICAL PARTS

For FB 60 and FB 70

21	4822 458 40561	LEFT-VERSION
22	4822 458 40562	RIGHT-VERSION
34	4822 445 30238	LEFT-VERSION
35	4822 445 30329	RIGHT-VERSION
37	4822 240 80043	DOME
41	4822 325 80497	GROMMET
64	4822 267 31331	CLICKFIT

For FB 80

21	4822 458 40561	LEFT-VERSION
22	4822 458 40562	RIGHT-VERSION
34	4822 445 30236	LEFT-VERSION
35	4822 445 30237	RIGHT-VERSION
37	4822 240 80043	DOME
41	4822 325 80497	GROMMET
64	4822 267 31331	CLICKFIT

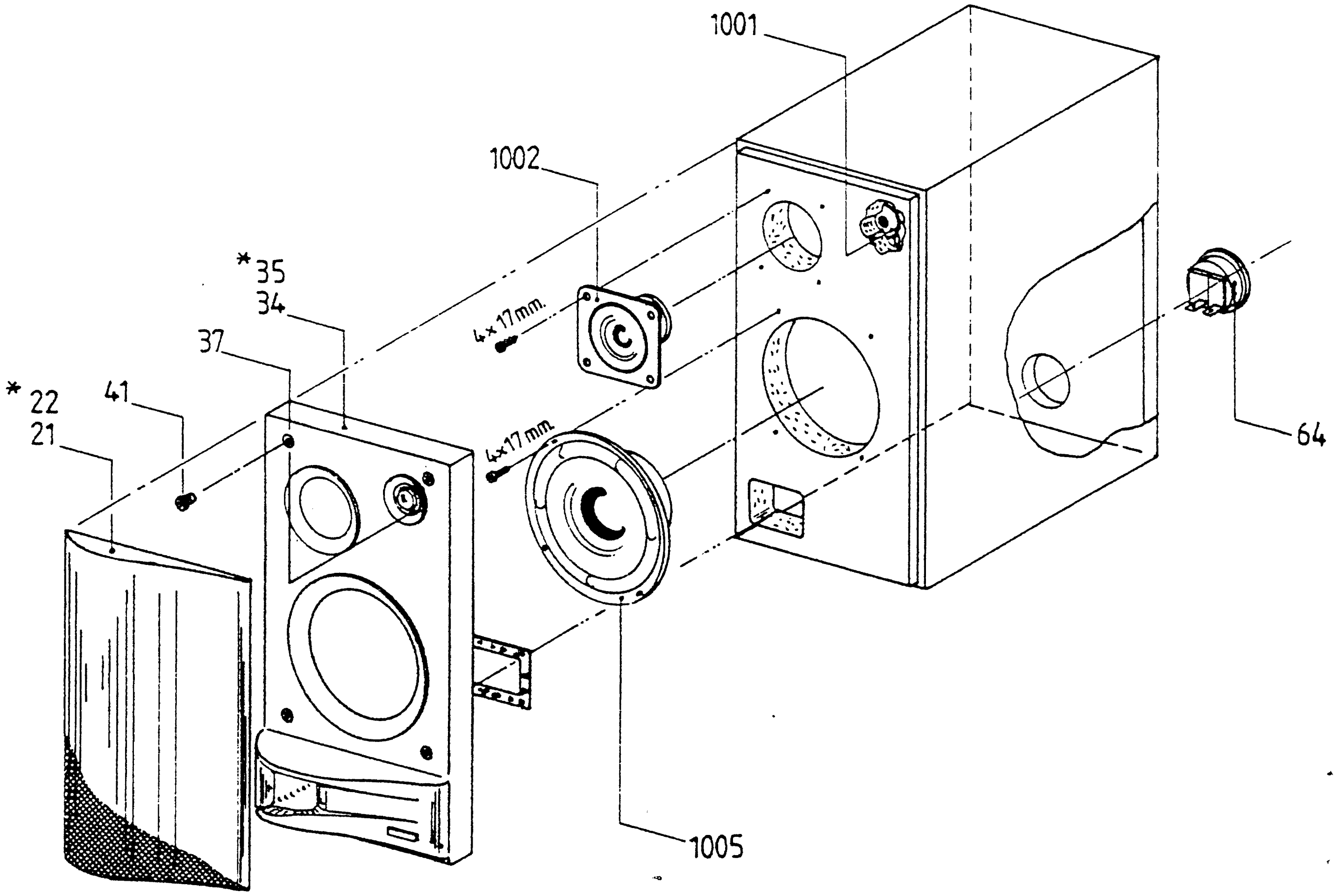
Service Information

	1992-08-25
Loudspeakerbox	70/FB 60 70/FB 70 70/FB 80
	A92/254

Product Service Group CE Audio

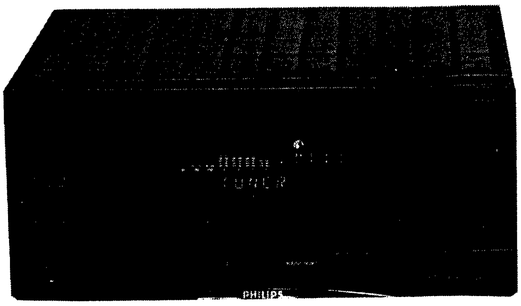
* In the loudspeaker boxes 70/FB 60 - 70/FB 70 and 70/FB 80
a click fit is added.
This from DD number 01 onwards.

4822 267 3133 (pos. 64 on exploded view)


1001
1002
*35
34
37
*22
21
41
4×17 mm.
4×17 mm.
64
1005

Ampifier 70FA080
/00U/01U/05U/06U/14U/17U

Service
Service
Service



Service Manual

CONTENTS **PAGE**

CONTENTS	PAGE
Specifcations	2
Controls & Connections	3
Dismantling of Source Selector	4
Dismantling of Front	4-5
Dismantling of Power PCB	6-7-8
Service Test Program	9-10
Electrical Adjustments	11
Grid assigment	12
Servicing hints and warnings	13
Trafo diagram	14
Wiring diagram	15-16
Spectrum analiser diagram	17-18
Front PCB	19-20
Front diagram	21-22-23
DSP digram	24
Source selector diagram	25-26
Source selector PCB	27-28-29-30
Equaliser and volume diagram	31-32-33
Power unit diagram	34-35-36
Power unit PCB	37-38-39
Exploded view	40-41
List of mechanical parts	42
List of electrical parts	43-44-45-46-47-48-49-50

Published by Consumer Electronics Printed in The Netherlands ©Copyright reserved Subject to modification 4822 725 23912

PHILIPS

PHILIPS

SPECIFICATION

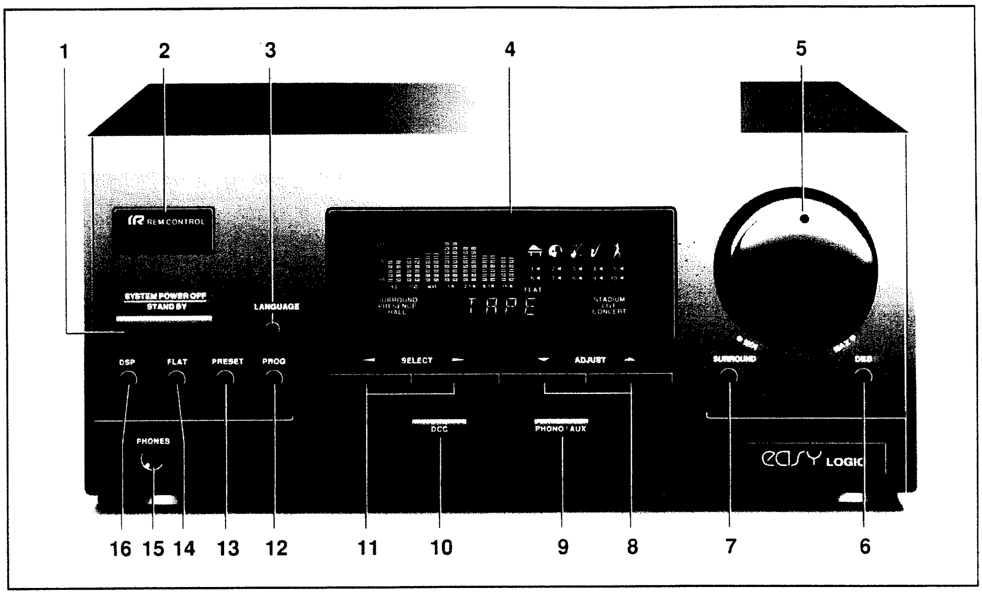
General:

Mains voltage	:230V ±10% 50Hz for/00
	:240V ±10% 50Hz for/05
	:120/230V ±15% 50Hz/60Hz for/01
	:230V ±15% 50Hz for/14
	:100V ±10% 50Hz for/06
	:120V ±10% 60Hz for/17
Power consumption	:≤ 250W at 2x55W output power
	:≤ 20W at stand by
Dimensions:(wxhxd)	:260x115x254 mm
Special features	:1 x 7 band spectrum analyser in FTD display
	:1 x 7 band equaliser: -5 free memories in presets
	-5 fixed (classic-vocal-rock-jazz-disco)
	:DSP function -5 effects
	(stadium-presence-live-hall-concert-off)
	:Surround switch
	:Micro input only/06

Amplifier:

Output power &	:≥2X55W at 6Ω D≤10% (EIAJ) ±0,5dB for /01
Distortion (D)	:≥2x40W at 8Ω D=≤0,7%(IEC)
Sign.Noise:	
Phone input	:≥73dB (A-curve weighted)
(IEC at Prated and Rsource=2k2)	
Other inputs	;≥75dB (A-curve weighted)
(IEC at Prated and Rsource=22k)	
Crosstalk :	
Between channels	:≥50dB (100Hz.....10kHz)
source	:≥50dB (100Hz.....10kHz)
Headphone	:3,5mm stereo jack
Output voltage	:5V EMF at 40W/8Ω ±1dB
Output impedance	:120Ω ±10%
Frequency response:	
linear inputs	:40Hz -20kHz ±3dB
phone	:40Hz -18kHz ±3dB
Tone controle:	
Equaliser 2x7 band	:63Hz -160Hz - 400Hz -1kHz -2,5kHz -6,3kHz -16kHz
	+10dB to -10dB in steps of ±2dB
DBB(volume ≤-40dB at 100Hz)	:+10dB (±2dB)
Input sensitivity	:Tuner 200mV Ri 22kΩ
for 40W/8Ω ±1dB	:AUX 250mV Ri ≥ 20kΩ
	:CD 350mV Ri ≥ 20kΩ
	:Tape 350mV Ri ≥ 20kΩ
	:DCC 250mV Ri ≥ 20kΩ
	:Phone/MM 2,5mV Ri ≥ 47kΩ/220pf
	:Micro 1mV(level adjust) ≥10kΩ only/06
Output voltage	:Tape 250mV Ro < 2k5
	:DCC 250mV Ro < 2k5

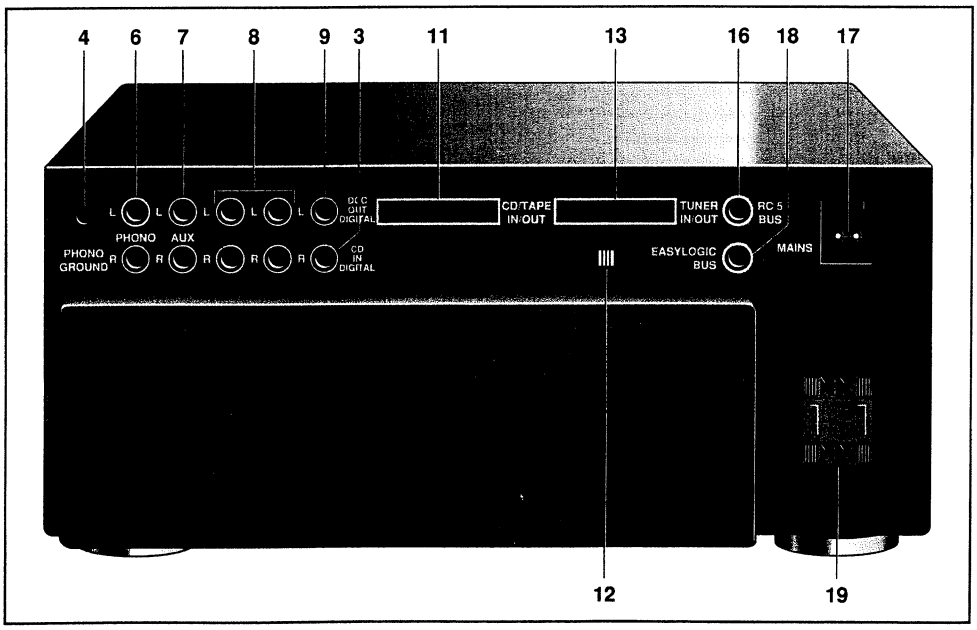
CONTROLS


1
2
3
4
5
IR REMCONTROL
SYSTEM POWER OFF
STAND BY
LANGUAGE
SURROUND
PRESENCE
HALL
TAPE
FLAT
STADIUM
LIVE
CONCERT
DSP
FLAT
PRESET
PROG
SELECT
ADJUST
SURROUND
DBB
PHONES
DCC
PHONO / AUX
easy LOGIC
16
15
14
13
12
11
10
9
8
7
6

		Pos nr.
1	Power ON/OFF Button	1271
2	IR Window	
3	Multi Language	1673
4	Display	
5	Volume Knob	3790
6	DBB Button	1666
7	Surround Button	1667
8	Adjust Up Button	1669
	Down Button	1670

		Pos nr.
9	Aux/Phone Button	1668
10	DCC Button	1678
11	Select Left Button	1671
	Richt Button	1672
12	Program Button	1677
13	Preset Button	1675
14	Flat Button	1674
15	Headphone socket	1710
16	DSP Button	1676

CONNECTIONS


4
6
7
8
9
3
11
13
16
18
17
PHONO GROUND
L
R
PHONO
AUX
DCC OUT DIGITAL
CD IN DIGITAL
CD/TAPE IN/OUT
TUNER IN/OUT
RC 5 BUS
EASYLOGIC BUS
MAINS
12
19

		Pos nr.
3	CD In Digital	1463
4	Phone Ground	
6	Phone	1551
7	Aux	1551
8	DCC In/Out	1551
9	DCC Out Digital	1463
11	CD/Tape In/Out	1458

		Pos nr.
12	Voltage Selector	
13	Tuner In/Out	1456
16	RC-5 Bus	1462
17	Mains	1270
18	Easy Logic Bus	1462
19	Speakers	1261

DISMANTLING OF SOURCE SELECTOR

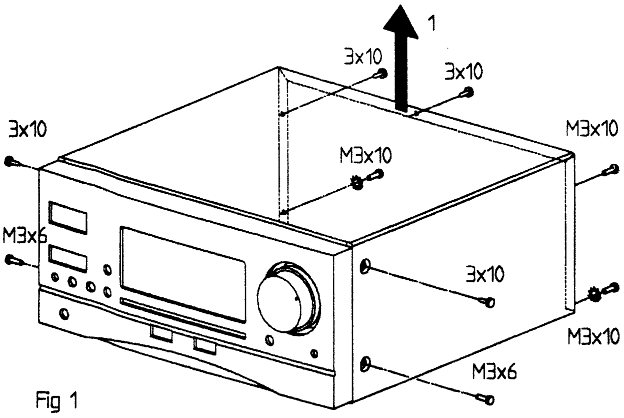

1
3x10
3x10
3x10
M3x10
M3x10
M3x6
3x10
M3x10
M3x6

Fig 1

1 Remove 2x M3X6 screws
4x 3X10 screws
2x M3X10 screws with ring
1x M3X10 screw see fig 1

2 Remove cover as shown in fig 1 arrow 1

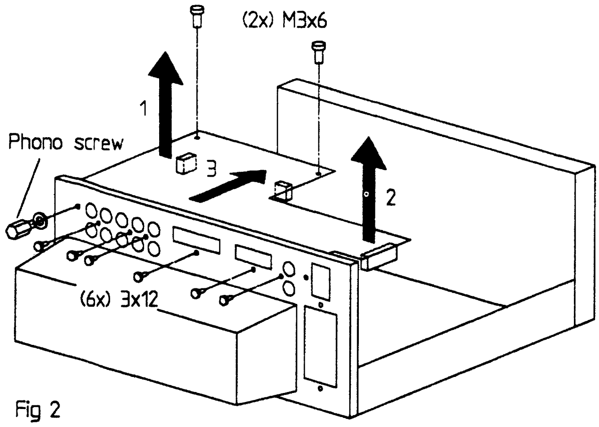

(2x) M3x6
1
Phono screw
3
2
(6x) 3x12

Fig 2

3 Remove 2x M3X6 screws
6x 3X12 screws
1x Phono ground screw see fig 2

4 Remove PCB as shown in fig 2 arrow 1 - 2 - 3

DISMANTLING OF FRONT & PCB

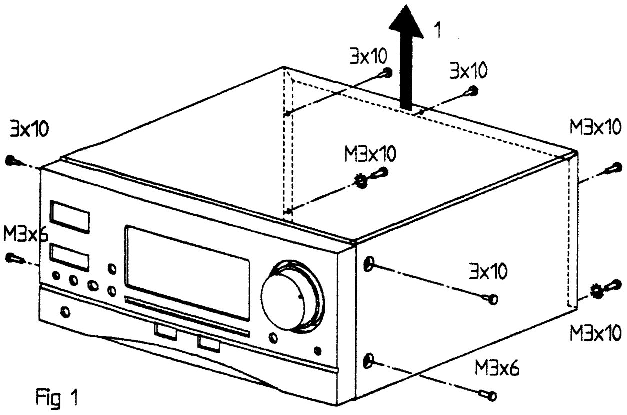

1
3x10
3x10
3x10
M3x10
M3x10
M3x6
3x10
M3x10
M3x6

Fig 1

1 Remove 2x M3X6 screws
4x 3X10 screws
2x M3X10 screws with ring
1x M3X10 screw see fig 1

2 Remove cover as shown in fig 1 arrow 1

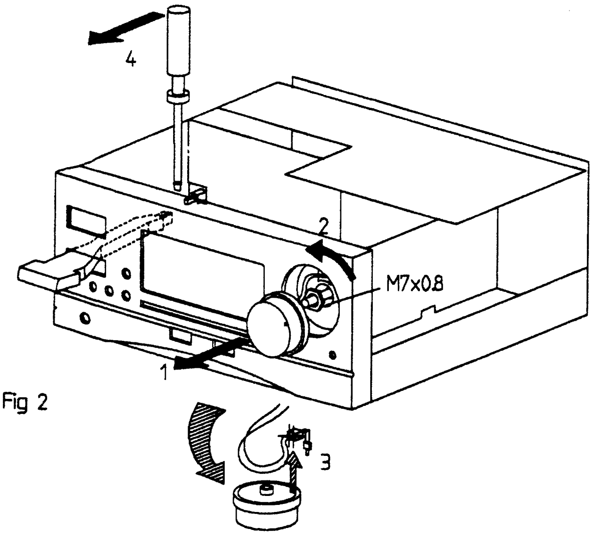


Fig 2

3 Remove power rod as shown in fig 2 arrow 4

4 Remove volume knob as shown in fig 2 arrow 1

5 Remove volume led as shown in fig 2 arrow 3
(puch snaps a littel open)

6 Remove nut M7X0,8 as shown in fig 2 arrow 2

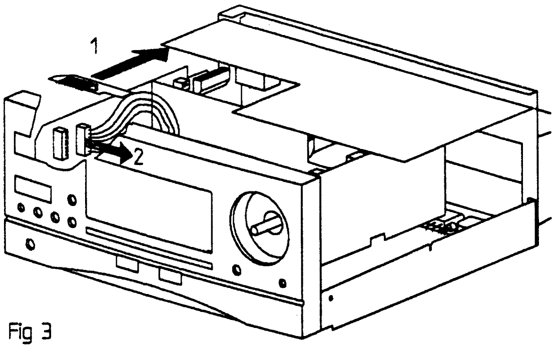


Fig 3

7 Remove lead assy as shown in fig 3 arrow 1 - 2

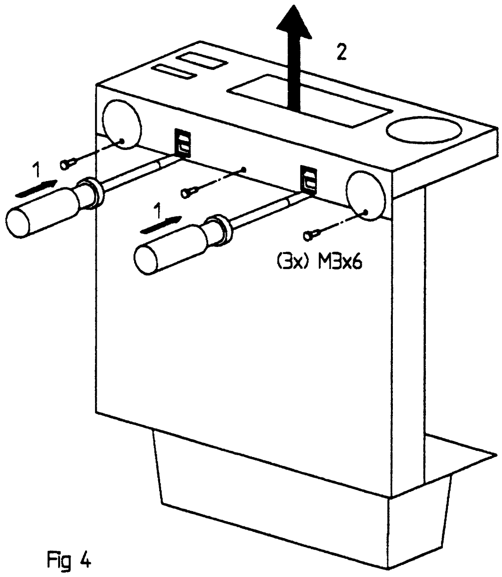


Fig 4

8 Remove 3x M3X6 screws see fig 3
9 Remove front as shown in fig 4 arrow 3 - 4

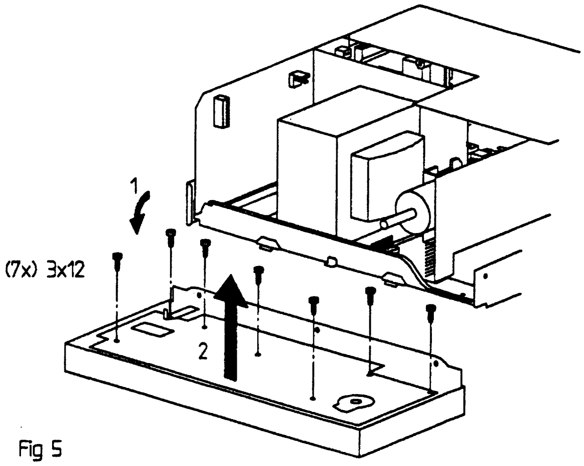


Fig 5

10 Tipp down front as shown in fig 5 arrow 1
11 Remove 7x 3X12 screws see fig 5
12 Remove PCB as shown in fig 5 arrow 2

DISMANTLING OF POWER PCB

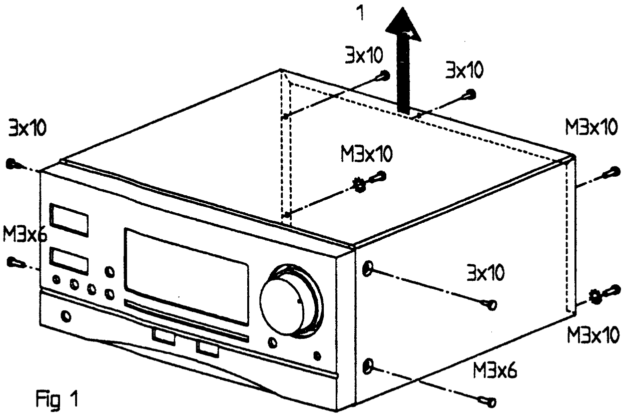

1
3x10
3x10
3x10
M3x10
M3x10
M3x6
3x10
M3x10
M3x6

Fig 1

1 Remove 2x M3X6 screws
4x 3X10 screws
2x M3X10 screws with ring
1x M3X10 screw see fig 1

2 Remove cover as shown in fig 1 arrow 1

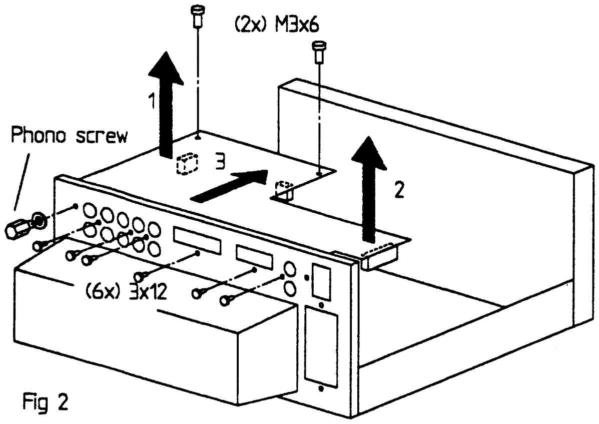

(2x) M3x6
1
Phono screw
3
2
(6x) 3x12

Fig 2

3 Remove 2x M3X6 screws
6x 3X12 screws
1x Phono ground screw see fig 2

4 Remove PCB ar shown in fig 2 arrow 1 - 2 - 3

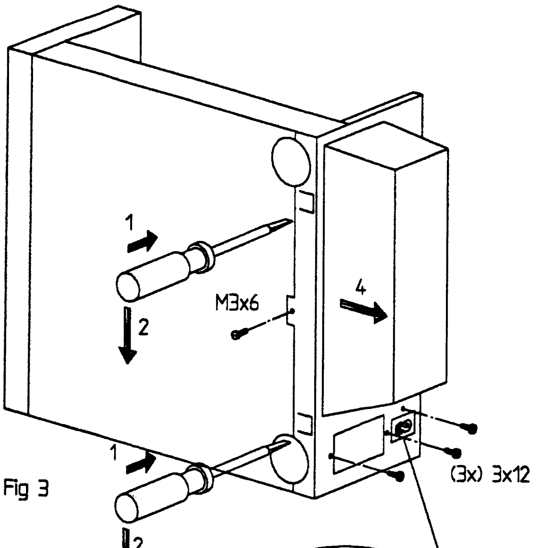

1
2
M3x6
4
1
2
(3x) 3x12

Fig 3

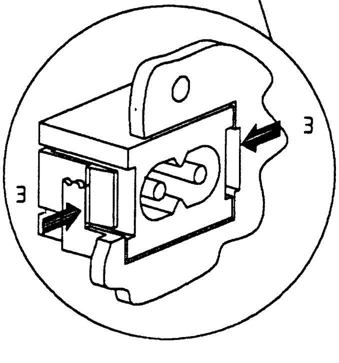


Fig 3a

5 Remove 1x M3X6 screw
3x 3X12 screws see fig 3

6 Remove backcover as shown in fig 3 arrow 1-2
To remove mainslet push snaps to inner side as shown fig 3a arrow 3

7 Remove backcover as shown in fig 3 arrow 4

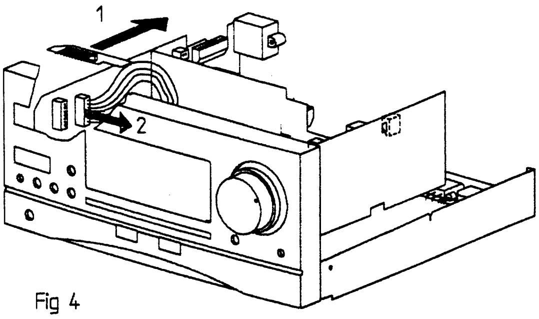


Fig 4

8 Remove lead assy as shown in fig 4 arrow 1 - 2

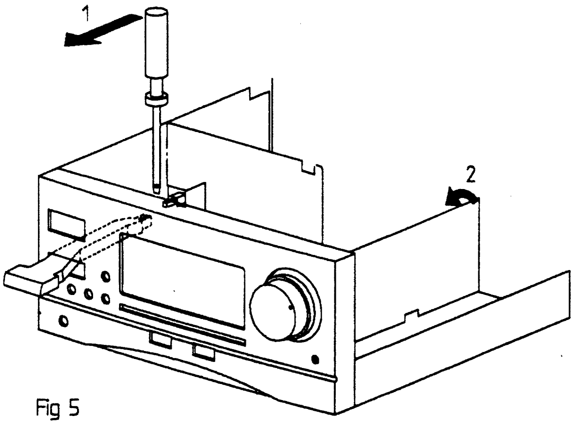


Fig 5

9 Remove power rod as shown in fig 5 arrow 1

10 Make volume panel loose as shown in fig 5 arrow 2

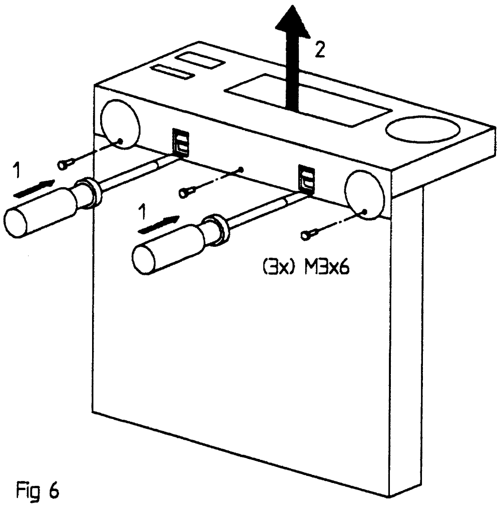


Fig 6

11 Remove 3x M3X6 screws

12 Remove front as shown in fig 6 arrow 1 - 2

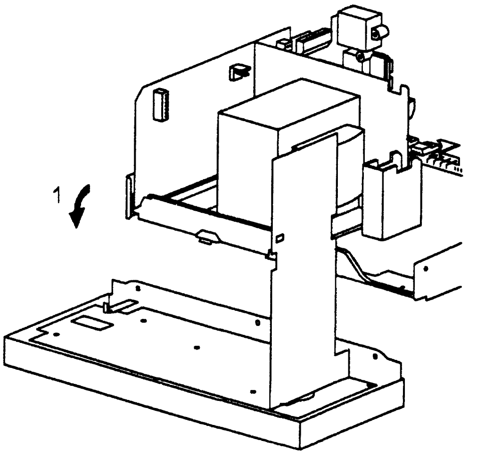


Fig 7

13 Tipp down front as show in fig 7 arrow 1

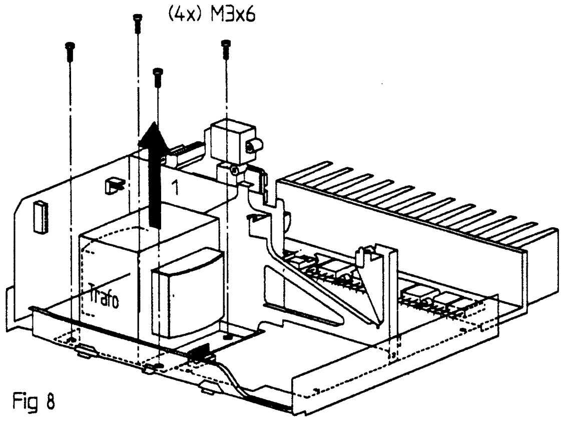

(4x) M3x6
1
Trafo

Fig 8

14 Remove 4x M3X6 screw see fig 8
15 Remove trafo as shown in fig 8 arrow 1

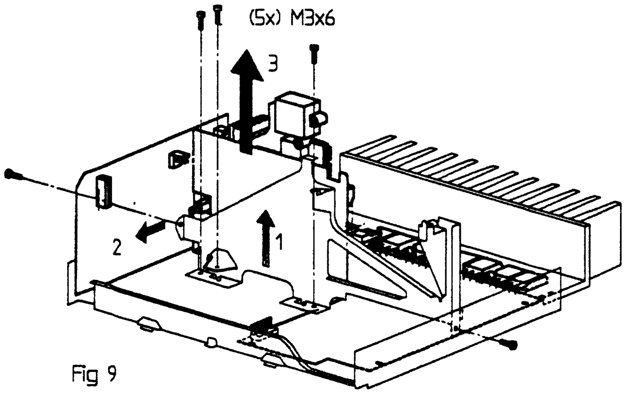


Fig 9

16 Remove 5x M3X6 screw see fig 9
17 Remove frame as shown in fig 9 arrow 1 - 2 - 3

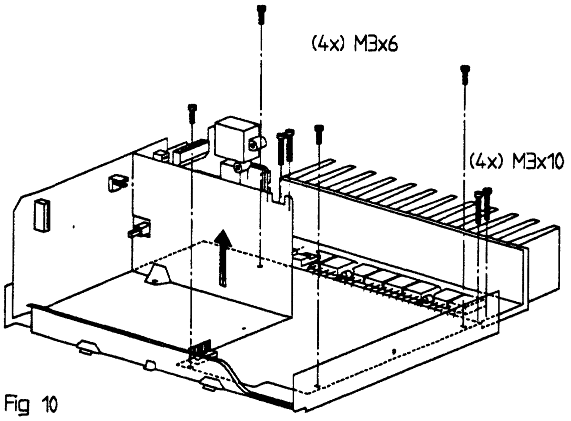

(4x) M3x6
(4x) M3x10

Fig 10

18 Remove 4x M3X10 screw
4x M3X6 screw see fig 10
19 Remove power PCB as shown in fig 10 arrow 1

SERVICE TEST PROGRAM

GENERAL

With this testprogramm the following parts can be checked.

1	Clock 8MHz	6	Spectrum
2	Key	7	Eeprom clear
3	Display	8	Eeprom
4	Balance	9	Source selection
5	Volume	10	Easylink

To go in test mode press **DBB** and the **PHONO/AUX** switch at the same time when aplifier is switched on.
The display shows for 2 sec.the loaded versions from the µ processor,and then SERVICE.
AUX are selected

1 CLOCK 8MHz TEST :

-Press the **DSP** button to start this testprogram.

A signal of 3.9kHz is put on the buzzer output (IC7883 pin 4 port13)
-To leave this test press **DSP** again,the display shows now SERVICE

2 KEY TEST :

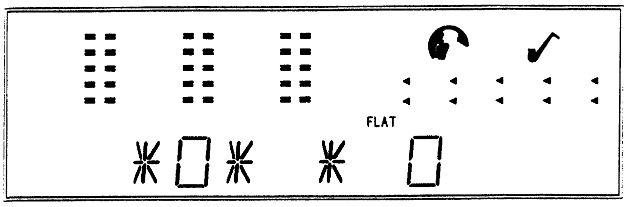
-Press the **FLAT** button to start this testprogram.

Press Button	Display Shows
DSP	KEY 17
PRESET	KEY 0E
PROGRAM	KEY 06
LANGUAGE	KEY 16
SELECT <	KEY 1E
SELECT >	KEY 1F
ADJUST DOWN	KEY 1B
ADJUST UP	KEY 1C
SURROUND	KEY 1A
DBB	KEY 19
DCC	KEY 07
PHONO/AUX	KEY 1D

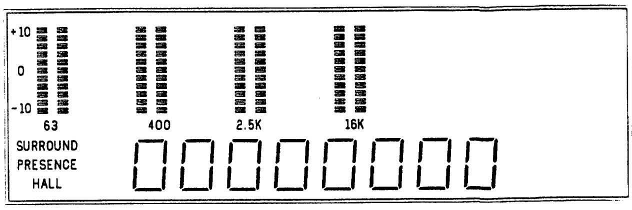
-When the test is OK the dispay shows Key OK,otherwise Key ** .
-To leave this test press **FLAT** again,the display shows now SERVICE.

3 DISPLAY TEST :

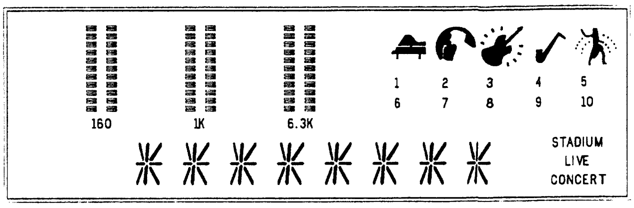
-Press the **PRESET** button to start this testprogram.
The dispay shows now DISPLAY.
--Press **ADJUST UP** button.The display shows



Press again **ADJUST UP** button,the display shows now:



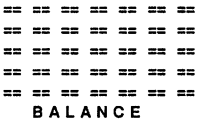
--Press again **ADJUST UP** button.the display shows now:



--Press again **ADJUST UP** button,the display light complitly up.
-To leave this test press **PRESET** button again,the display shows now SERVICE

4 BALANCE TEST :

-Press the **PROGAM** button to start this testprogram.
The dispay shows now DISPLAY:



--Press **ADJUST UP** button,after 8 times pressing this button the display shows :see fig a.
--Press **ADJUST DOWN** button,after 8 timespressing this button the display shows :see fig b.

Fig a

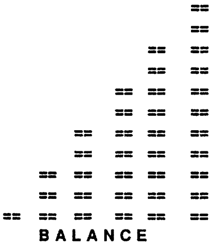
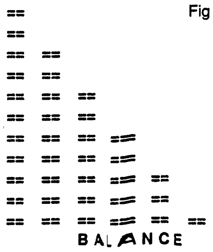


Fig b



-To leave this test press **PROGRAM** button again,the display shows now SERVICE

5 VOLUME TEST :

-Press the **SELECT <** button to start this testprogram.

The dispay shows now VOLUME.

--Press **ADJUST UP** button the volume turns clockwise
--Press **ADJUST DOWN** button the volume turns counter-clockwise
-To leave this test press **SELECT <** again,the display shows now SERVICE.

6 SPECTRUM TEST :

-Press the **SELECT >** button to start this testprogram.

The dispay shows now SPECTRUM.

--Press **ADJUST UP** button, one frequency band is select and this band is shows on display. SP - 16K . Press again on the ADJUST UP button to scroll through this test.The display shows SP - 6300 SP - 2500 SP - 1000 SP - 400 SP - 160 SP - 63
The first bar lights with ± 3mV on the aux input.
The 7 th bar lights with ± 20 mV on th aux input.
The 11 th bar lights with ± 100mV on the aux input

-To leave this test press **SELECT >** again,the display shows now SERVICE.

7 EEPROM CLEAR :

-Press the **ADJUST DOWN** button , the dispay shows CLR - PROM for 2 sec.With this test the eeprom is cleared automaticcally.

8 EEPROM TEST :

-Press the **ADJUST UP** button , the dispay shows PROM - OK for 2 sec. The eeprom is tested with an automatic write and read sequence.If a fault is found the dispay shows PROM - DEF .

9 SOURCE SELECTION TEST :

-Press the **DCC** button to start this testprogram.
The dispay shows now SOURCE.
--Press **ADJUST UP** button to select out the next source
TUNER TAPE CD PHONE AUX

-To leave this test press **DCC** again,the display shows now SERVICE.

10 EASYLINK TEST :

-With this test the following are test:
--if both easylink IN and OUT are high
---if not the display shown **EAS-CON**
--the EasOut* port is put low and the EasIn* must follow
---if not the display shown **EAS-LOW**
--the EasOut* port is put High and the EasIn* must follow
---if not the display shown **EAS-HIGH**
*EasOut port=P50 pin75 IC7683
*EasIn port=P11 pin 2 IC7683

-Press the **LANGUAGE** button to start this test:

The Easylink test is completed if the display shown after 2sec **EAY-OK**

SERVICE HINTS:

When the source selector panel is removed the power unit doesn't work amymore.
This can by helped in two ways.

-Make a shortcircuit over diode 6282 (power unit)
or
-Connect the voltage +14V /massa/ -14V (plug 1280 power unit)back on the source selector panel(plug 1454 selector)

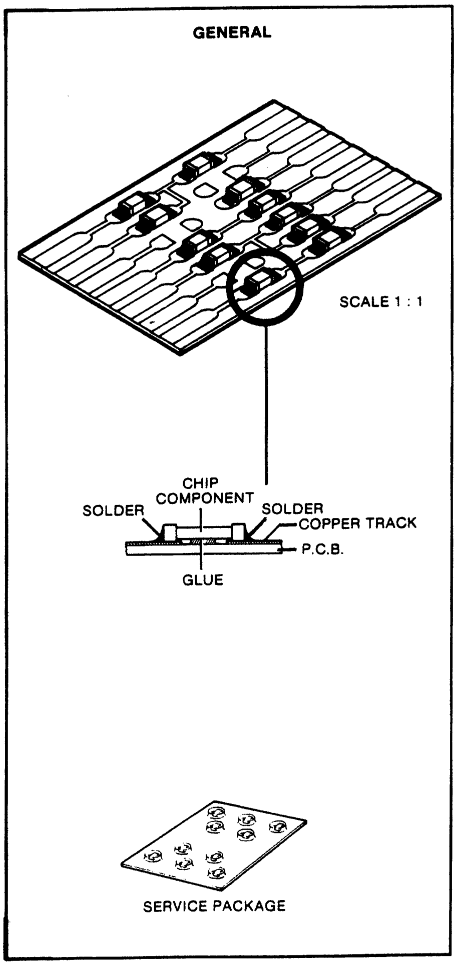
Trade Mode:

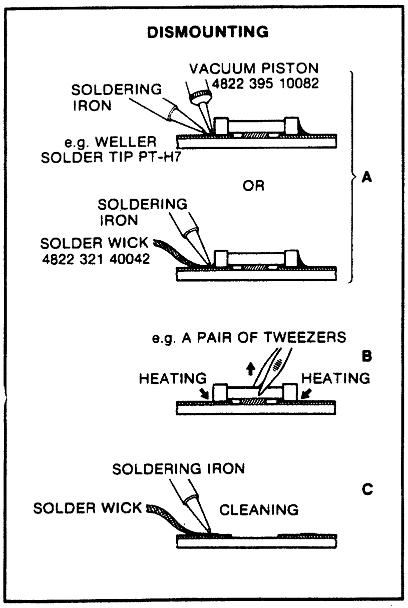
When through same reasen the trade mode is working it can be switched off as following
Switch power off.
Press DCC button and AUX/Phone button at the same time when you switch the power on.

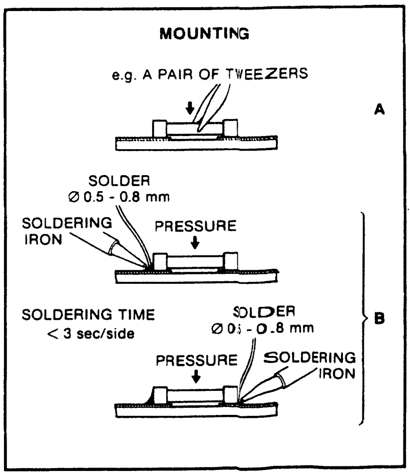
Quiescent Current

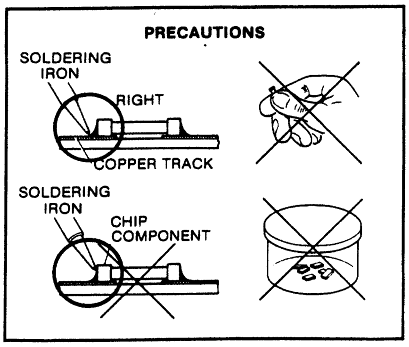
SK.... SWITCH	SIGNAL	TO	VOLUME	ADJUST	OSILLOSCOPE	D.C.METER INDICATOR
STAND - BY				L ch R 3285		L ch. ◇1 ◇2 DC 8 mV
				R ch. R 3284		R ch. ◇3 ◇4 DC 8 mV

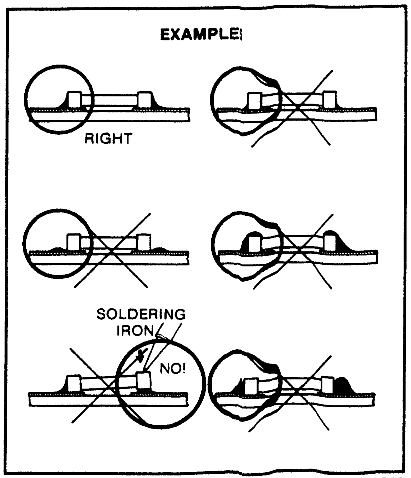
- Check for good thermal contact between power transistor and heatsink.
- Mains Voltage 220V /00 240V /05 5%
- Ambient themperature =20° 5° and heatsink must be atambient temperature.
- Place the set on stand-by position.
- Trimpotmeter in clock wise position.
- The adjustment must be finished for both channels 20sec after power on.


GENERAL
SCALE 1 : 1
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE


DISMOUNTING
VACUUM PISTON
4822 395 10082
SOLDERING IRON
e.g. WELLER SOLDER TIP PT-H7
OR
A
SOLDERING IRON
SOLDER WICK
4822 321 40042
e.g. A PAIR OF TWEEZERS
B
HEATING
HEATING
SOLDERING IRON
C
SOLDER WICK
CLEANING

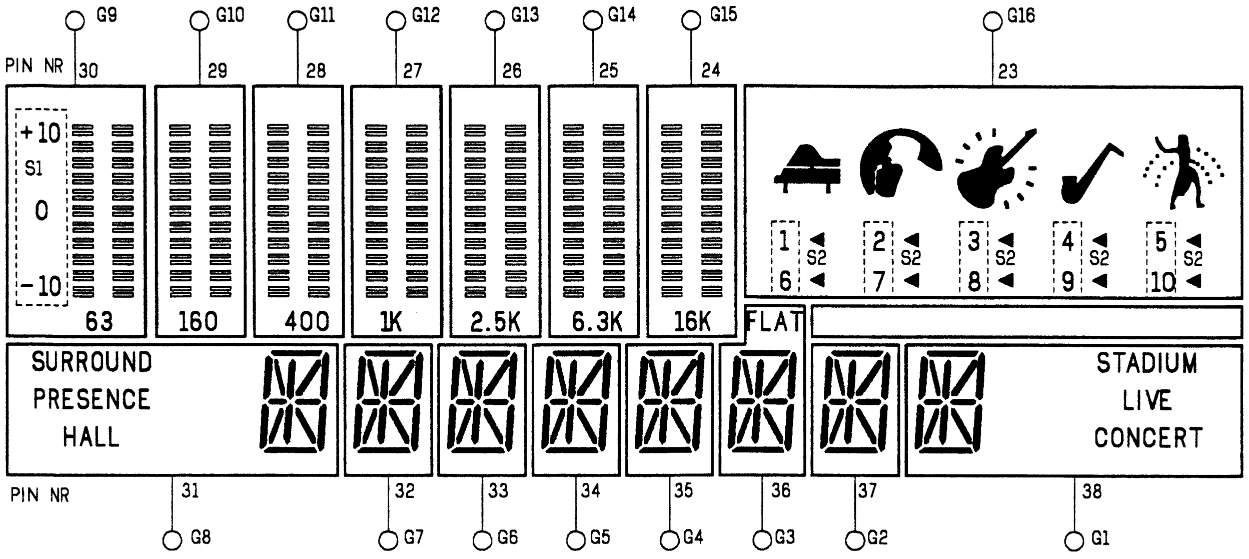

MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER
Ø 0.5 - 0.8 mm
SOLDERING IRON
PRESSURE
SOLDERING TIME
< 3 sec/side
SOLDER
Ø 0.5 - 0.8 mm
B
PRESSURE
SOLDERING IRON

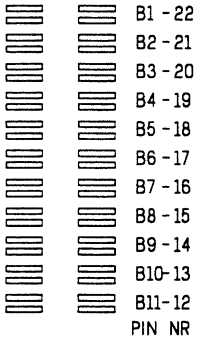

PRECAUTIONS
SOLDERING IRON
RIGHT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT

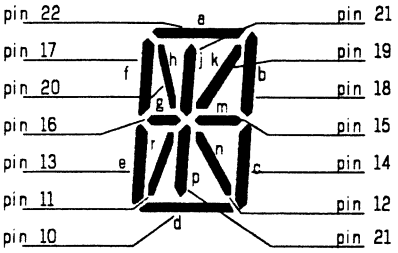

EXAMPLES
RIGHT
SOLDERING IRON
NO!

27 012C12

GRID ASSIGMENT


G9
G10
G11
G12
G13
G14
G15
G16
PIN NR
30
29
28
27
26
25
24
23
+10
S1
0
-10
63
160
400
1K
2.5K
6.3K
16K
1
6
S2
2
7
3
8
4
9
5
10
FLAT
SURROUND
PRESENCE
HALL
STADIUM
LIVE
CONCERT
PIN NR
31
32
33
34
35
36
37
38
G8
G7
G6
G5
G4
G3
G2
G1


B1 - 22
B2 - 21
B3 - 20
B4 - 19
B5 - 18
B6 - 17
B7 - 16
B8 - 15
B9 - 14
B10- 13
B11- 12
PIN NR


pin 22
pin 17
pin 20
pin 16
pin 13
pin 11
pin 10
a
h
j
k
f
b
g
m
r
n
e
c
p
d
pin 21
pin 19
pin 18
pin 15
pin 14
pin 12
pin 21

PIN CONNECTION

PIN NR	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01
CONNECTION	F2	F2	NP	NP	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	14G	15G	16G	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	NC	NC	NP	NP	F1	F1

F1,F2-FILEMENT NP = NO PIN NC = NO CONNECTION 1G → 16G = GRID

ANODE CONNECTION

	16G	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	S1	B1	B1	B1	B1	B1	B1	B1	a	a	a	a	a	a	a	a
P2	◁(1)	B2	B2	B2	B2	B2	B2	B2	j.p	j.p	j.p	j.p	j.p	j.p	j.p	j.p
P3	◁(2)	B3	B3	B3	B3	B3	B3	B3	h	h	h	h	h	h	h	h
P4	◁(3)	B4	B4	B4	B4	B4	B4	B4	k	k	k	k	k	k	k	k
P5	◁(4)	B5	B5	B5	B5	B5	B5	B5	b	b	b	b	b	b	b	b
P6	◁(5)	B6	B6	B6	B6	B6	B6	B6	f	f	f	f	f	f	f	f
P7	◁(6)	B7	B7	B7	B7	B7	B7	B7	g	g	g	g	g	g	g	g
P8	◁(7)	B8	B8	B8	B8	B8	B8	B8	m	m	m	m	m	m	m	m
P9	◁(8)	B9	B9	B9	B9	B9	B9	B9	c	c	c	c	c	c	c	c
P10	◁(9)	B10	B10	B10	B10	B10	B10	B10	e	e	e	e	e	e	e	e
P11	◁(10)	B11	B11	B11	B11	B11	B11	B11	n	n	n	n	n	n	n	n
P12	🎹	-	-	-	-	-	-	-	r	r	r	r	r	r	r	r
P13	🗣	16K	6.3K	2.5K	1K	400	160	63	d	d	d	d	d	d	d	d
P14	🎸	-	-	-	-	-	-	-	SURROUND	-	-	-	-	FLAT	-	STADION
P15	🎷	-	-	-	-	-	-	-	PRESENCE	-	-	-	-	-	-	LIVE
P16	💃	-	-	-	-	-	-	-	HALL	-	-	-	-	-	-	CONCERT

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

NL

Veiligheidsbepalingen vereisen dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.

F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pieces de rechange identiques à celles spécifiées.

Pour votre sécurité, ces documents doivent etre utilisés par des specialistes agrées, seuls habilités à réparer votre appareil en panne.

WARNINGS

GB WARNING

All ICs and many other semi conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.When reparing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

NL WAARSCHUWING

Alle ICs en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD)
Onzorgvuldig behandelen tijden reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat U tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat. Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber electrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren. Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

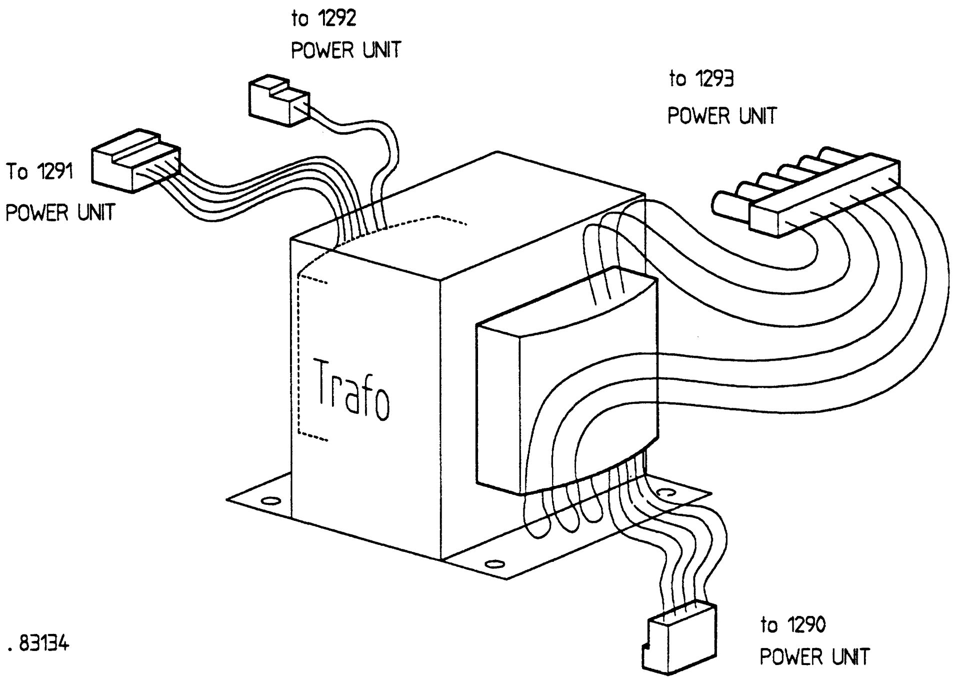
F ATTENTION

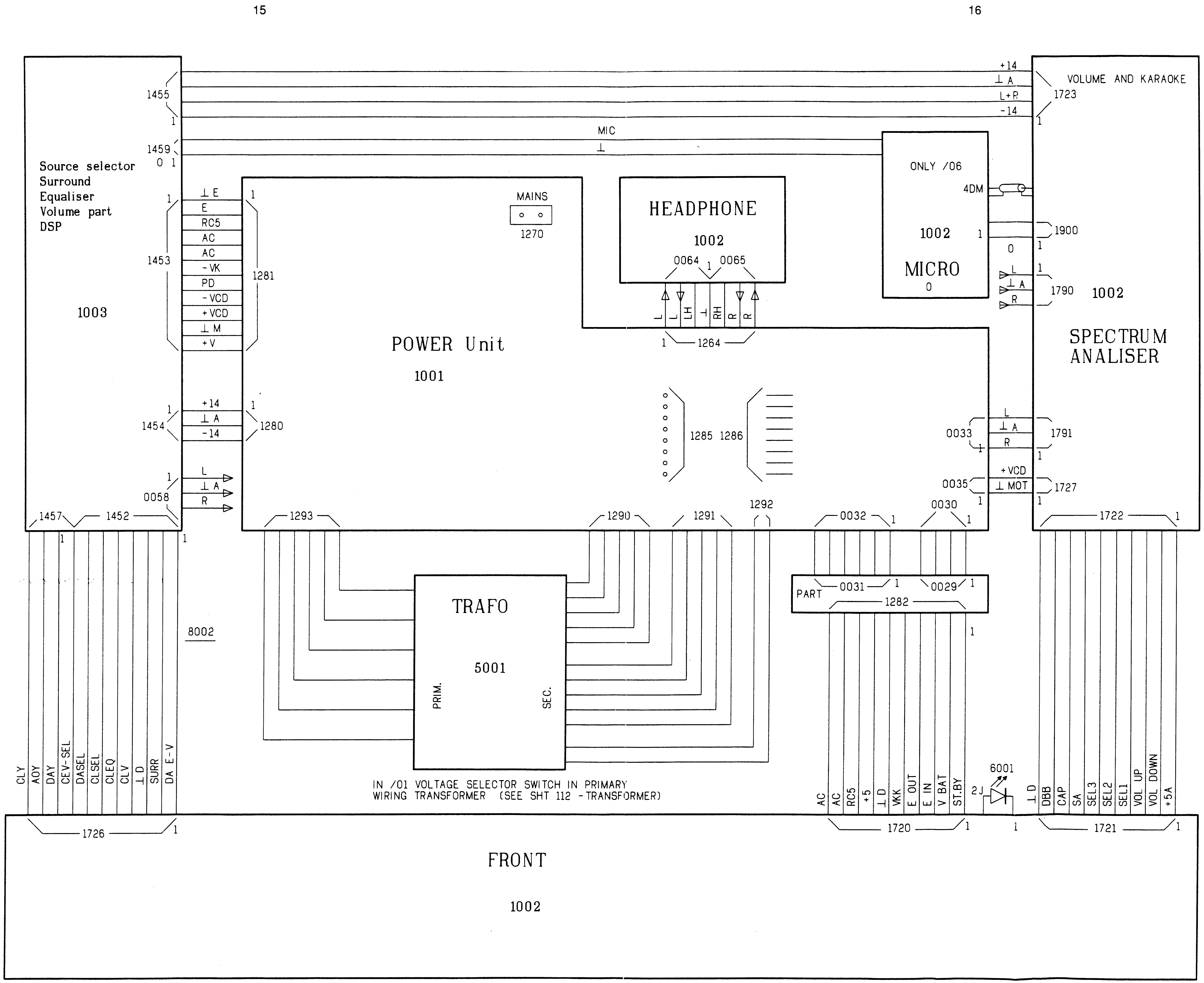
Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrair étre considérablement écourtée par le fait qu'aucune precaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien étre relié au meme potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller á ce que les composants ainsi que les outils que l'on utilise soient également á ce potentiel.

I AVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche. (ESD)
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

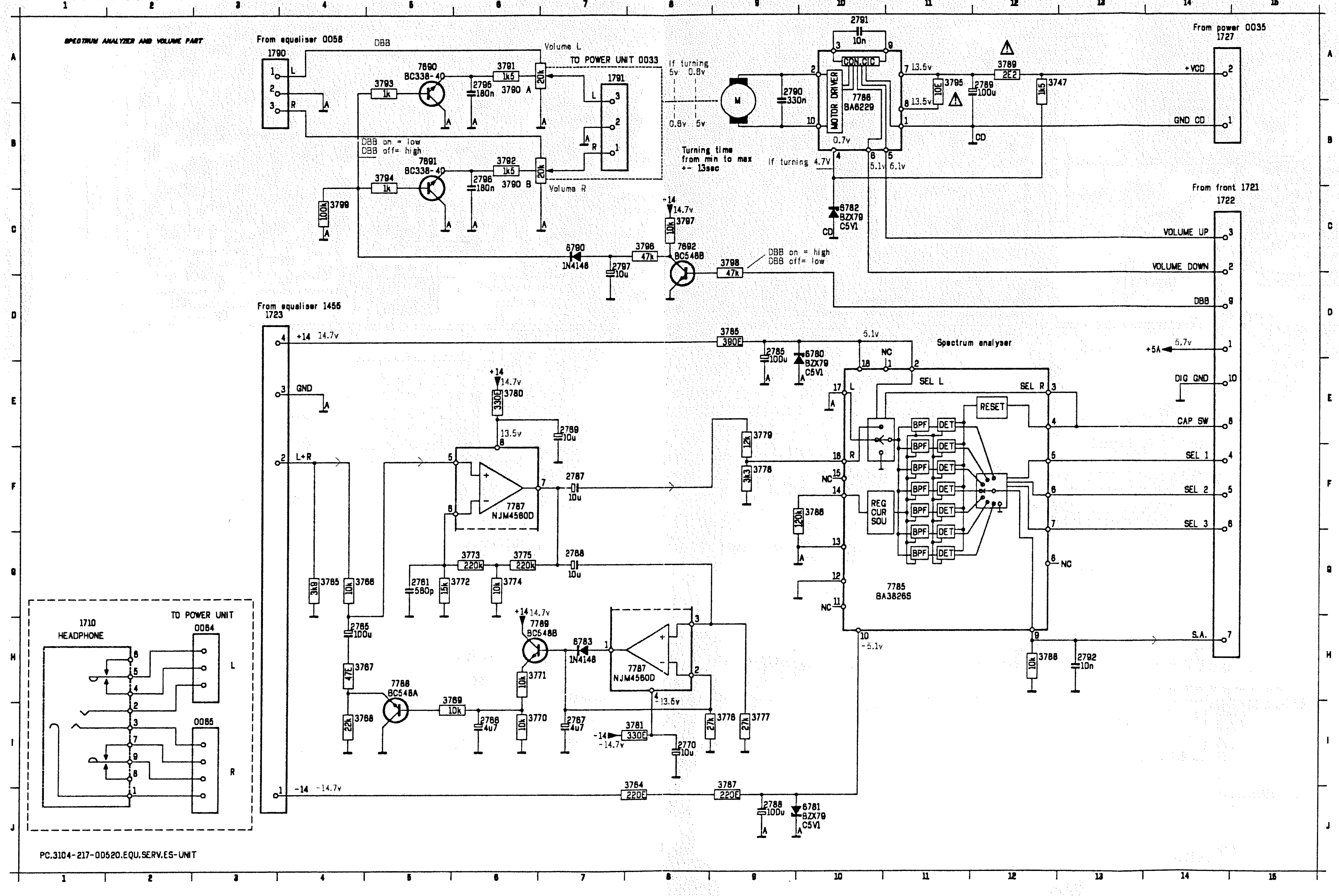
MAINS TRAFO DIAGRAM

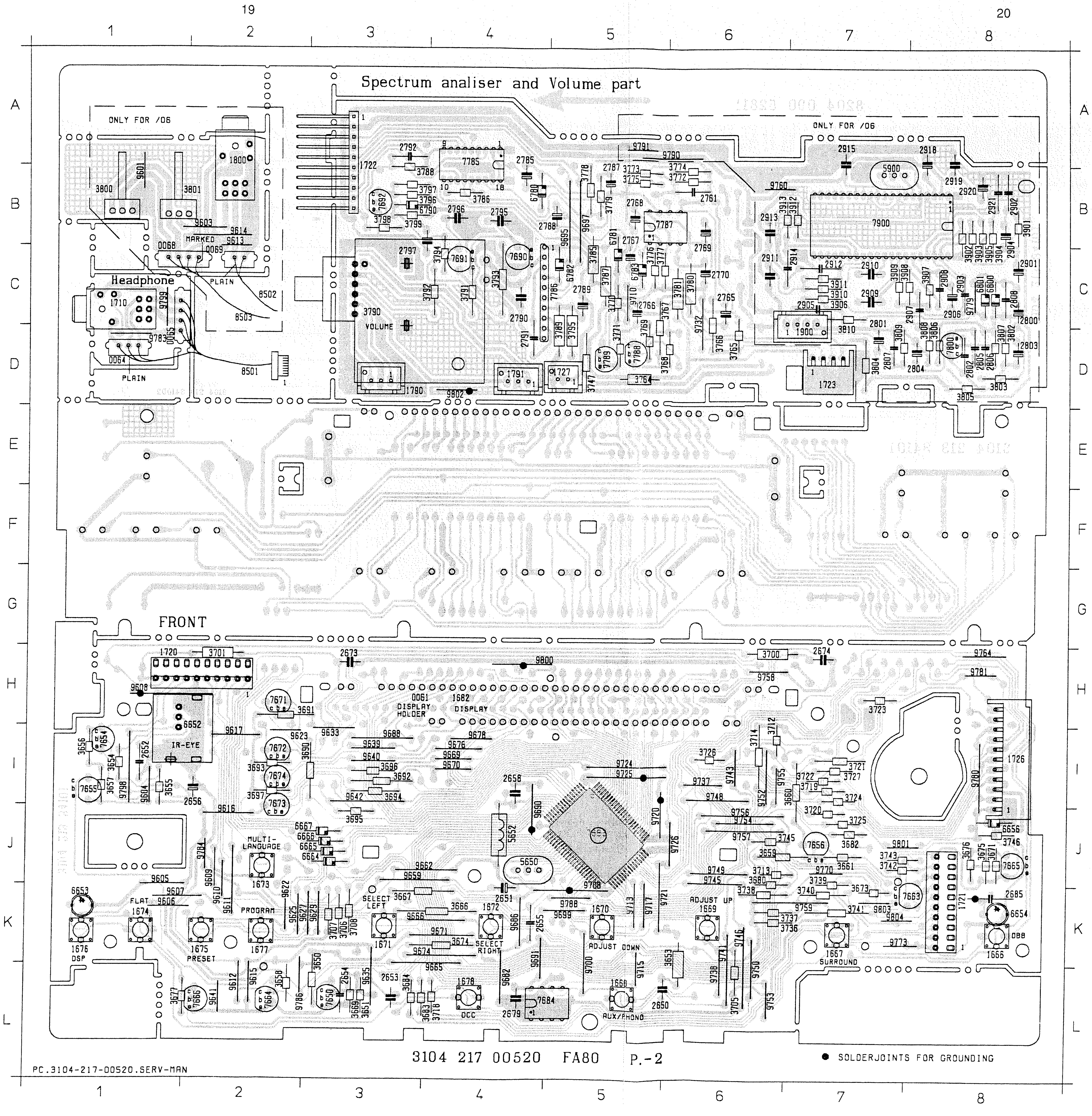

to 1292
POWER UNIT
to 1293
POWER UNIT
To 1291
POWER UNIT
Trafo
EVA . 83134
to 1290
POWER UNIT


15
16
Source selector
Surround
Equaliser
Volume part
DSP
1003
1455
1459
1453
1454
0058
1457
1452
8002
1726
POWER Unit
1001
MAINS
1270
1281
1280
1293
1290
1291
1292
1285 1286
0033
0035
0030
0032
HEADPHONE
1002
0064
0065
1264
ONLY /06
4DM
1002
MICRO
0
1900
1790
1791
1727
1722
1723
VOLUME AND KARAOKE
SPECTRUM ANALISER
1002
+14
⊥ A
L+R
-14
MIC
⊥
⊥ E
E
RC5
AC
AC
-VK
PD
-VCD
+VCD
⊥ M
+V
+14
⊥ A
-14
L
⊥ A
R
L
⊥ A
R
+VCD
⊥ MOT
L
L
LH
⊥
RH
R
R
TRAFO
5001
PRIM.
SEC.
IN /01 VOLTAGE SELECTOR SWITCH IN PRIMARY
WIRING TRANSFORMER (SEE SHT 112 - TRANSFORMER)
PART
0031
0029
1282
6001
2J
CLY
AOY
DAY
CEV-SEL
DASEL
CLSEL
CLEQ
CLV
⊥ D
SURR
DA E-V
AC
AC
RC5
+5
⊥ D
VKK
E OUT
E IN
V BAT
ST.BY
⊥ D
DBB
CAP
SA
SEL3
SEL2
SEL1
VOL UP
VOL DOWN
+5A
1720
1721
FRONT
1002

△ ONLY FA80
O ONLY FA80/06

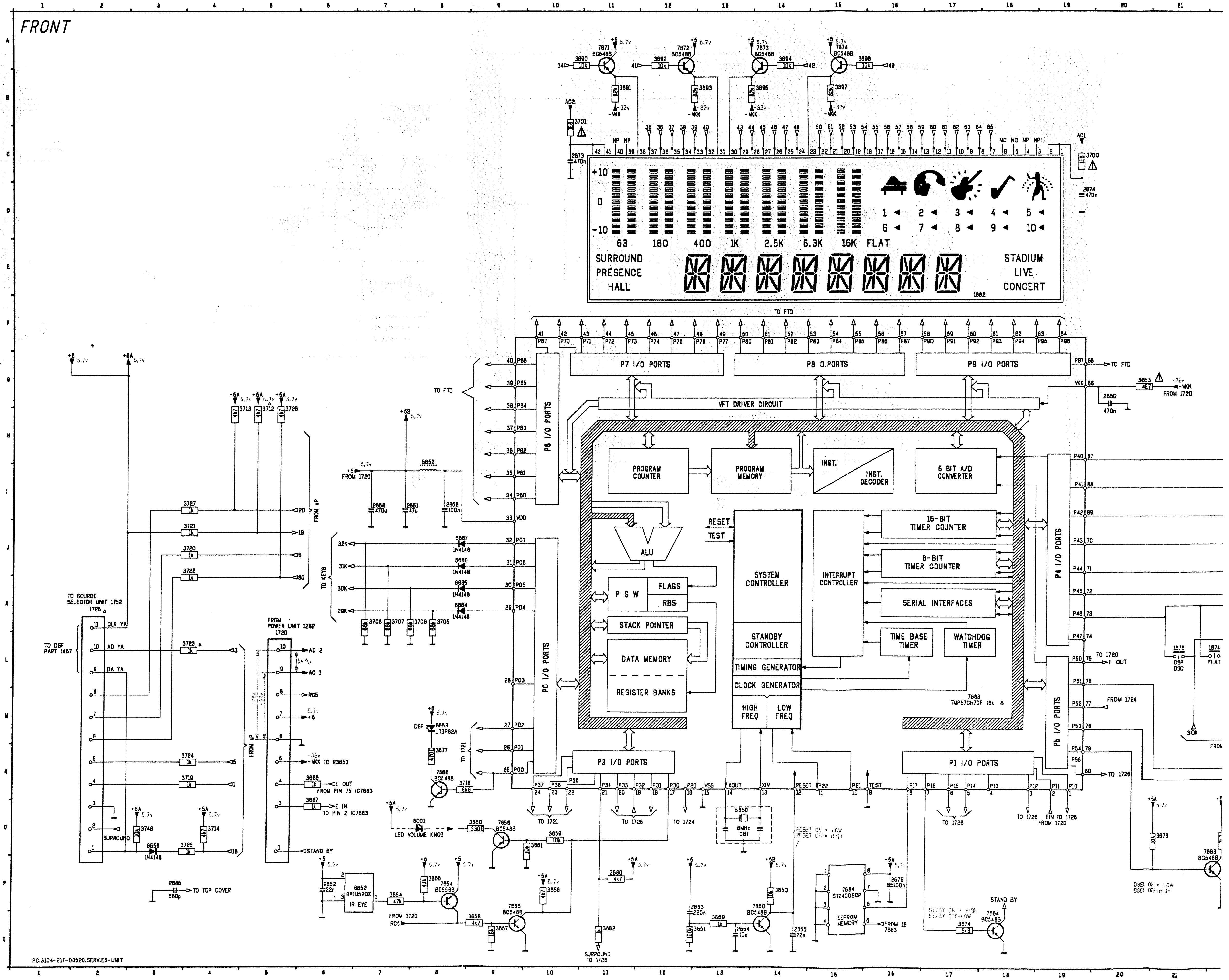
0064	H 3
0065	I 3
1710	H 1
1722	C14
1723	D 3
1727	A14
1790	A 3
1791	A 7
2761	G 5
2765	H 4
2766	I 6
2767	I 7
2768	G 7
2769	E 7
2770	I 8
2785	D 9
2787	F 7
2788	J 9
2789	A11
2790	A 9
2791	A10
2792	H13
2795	A 6
2796	B 6
2797	C 7
3747	A12
3764	I 8
3765	G 4
3766	G 4
3767	H 4
3768	I 4
3769	H 6
3770	I 6
3771	H 6
3772	G 5
3773	G 6
3774	G 6
3775	G 6
3776	I 8
3777	I 9
3778	F 9
3779	E 9
3780	E 6
3781	I 8
3785	D 9
3786	F 9
3787	I 9
3788	H12
3789	A12
3790	B 7
3790	A 7
3791	A 6
3792	B 6
3793	A 5
3794	B 5
3795	A11
3796	C 8
3797	C 8
3798	C 9
3799	C 4
6780	D 9
6781	J 9
6782	C10
6783	H 7
6790	C 7
7690	A 5
7691	B 5
7692	C 8
7785	G11
7786	A10
7787	F 6
7787	H 8
7788	H 5
7789	H 7


SPECTRUM ANALYZER AND VOLUME PART
From equaliser 0058
1790
DBB
Volume L
TO POWER UNIT 0033
7690 BC338-40
7691 BC338-40
3791 1k5
3792 1k5
3793 1k
3794 1k
3799 100k
2795 180n
2796 180n
3790 A
3790 B
Volume R
1791
DBB on = low
DBB off= high
If turning 5v 0.8v
0.8v 5v
Turning time from min to max +- 13sec
If turning 4.7V
M
2790 330n
2791 10n
CON.CIC
MOTOR DRIVER
7786 BA6229
0.7v
5.1v 6.1v
13.5v
3795 10E
3789 2E2
2789 100u
3747 1k5
CD
From power 0035
1727
+VCD
GND CD
6782 BZX79 C5V1
3797 10k
6790 1N4148
2797 10u
3796 47k
7692 BC548B
3798 47k
DBB on = high
DBB off= low
From front 1721
1722
VOLUME UP
VOLUME DOWN
DBB
+5A 5.7v
DIG GND
CAP SW
SEL 1
SEL 2
SEL 3
S.A.
From equaliser 1455
1723
+14 14.7v
GND
L+R
-14 -14.7v
3785 390E
2785 100u
6780 BZX79 C5V1
Spectrum analyser
NC
SEL L
SEL R
RESET
BPF
DET
REG CUR SOU
7785 BA3826S
3779 12k
3778 3k3
3786 120k
10 -5.1v
3788 10k
2792 10n
3780 330E
2789 10u
13.5v
7787 NJM4560D
2787 10u
3773 220k
3775 220k
2788 10u
2761 560p
3772 15k
3774 10k
3765 3k9
3766 10k
2765 100u
3767 47E
3768 22k
7788 BC548A
3769 10k
2786 4u7
7789 BC548B
3771 10k
3770 10k
6783 1N4148
2767 4u7
3781 330E
2770 10u
3776 27k
3777 27k
3764 220E
3787 220E
2788 100u
6781 BZX79 C5V1
1710 HEADPHONE
TO POWER UNIT 0064
0065
L
R
PC.3104-217-00520.EQU.SERV.ES-UNIT

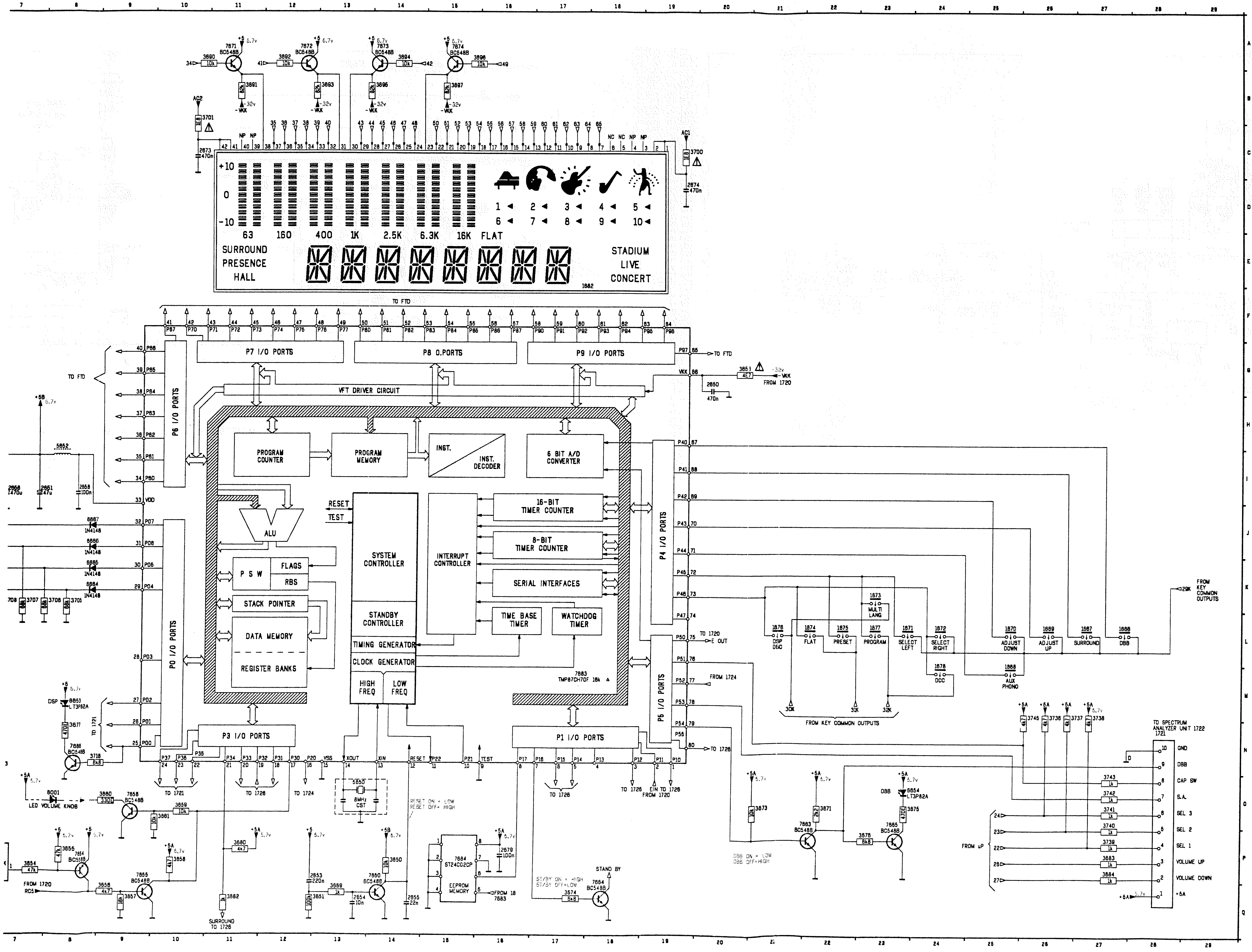

19
20
1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
K
L
Spectrum analiser and Volume part
ONLY FOR /06
Headphone
PLAIN
MARKED
VOLUME
FRONT
DISPLAY HOLDER
DISPLAY
IR-EYE
MULTI-LANGUAGE
FLAT
PROGRAM
PRESET
DSP
SELECT LEFT
SELECT RIGHT
ADJUST UP
ADJUST DOWN
AUX/PHONO
OCC
SURROUND
DBB
3104 217 00520 FA80 P.-2
● SOLDERJOINTS FOR GROUNDING
PC.3104-217-00520.SERV-MAN

0061	H3
0064	D1
0065	D1
0068	C1
0069	C2
1666	K8
1667	K7
1668	L5
1669	K8
1670	K5
1671	K3
1672	K4
1673	K2
1674	K1
1675	K2
1676	K1
1677	K2
1678	L4
1682	H4
1710	C1
1720	H1
1721	K8
1722	B3
1723	D7
1726	I8
1727	D5
1790	D3
1791	D4
1800	A2
1900	D7
2650	L5
2651	K4
2652	I1
2653	L3
2654	L3
2655	K4
2656	J2
2658	I4
2673	H3
2674	H7
2679	L4
2685	K8
2761	B6
2765	C6
2766	C5
2767	B5
2768	B5
2769	C6
2770	C6
2785	A4
2787	B5
2788	B4
2789	C5
2790	C4
2791	D4
2792	A3
2795	B4
2796	B4
2797	C3
2800	C8
2801	C7
2802	D8
2803	D8
2804	D8
2805	D8
2806	D8
2807	D7
2808	C8
2901	C8
2902	B8
2903	C8
2904	C8
2905	C7
2906	C8
2907	C8
2908	C8
2909	C7
2910	C7
2911	C6
2912	C7
2913	B6
2914	C7
2915	A7
2918	A8
2919	B8
2920	B8
2921	B8
3650	K3
3651	L3
3653	K6
3654	I1
3655	I1
3656	I1
3657	I1
3658	L2
3659	J6
3660	I7
3661	J7
3666	K4
3667	K3
3669	L3
3671	J8
3673	K7
3674	K4
3675	J8
3676	J8
3677	L1
3680	J8
3682	J7
3683	L4
3684	L3
3690	I3
3691	H3
3692	I3
3693	I2
3694	I3
3695	J3
3696	I3
3697	I2
3700	H6
3701	H2
3705	L6
3706	K3
3707	K3
3708	K3
3712	H6
3713	J6
3714	I6
3718	L4
3719	I7
3720	J7
3721	I7
3722	I7
3723	H7
3724	I7
3725	J7
3726	I6
3727	I7
3736	K7
3737	K7
3738	K6
3739	J7
3740	K7
3741	K7
3742	J7
3743	J7
3745	J7
3746	J8
3747	D5
3764	D5
3765	D6
3766	D6
3767	C5
3768	D5
3769	D5
3770	C5
3771	D5
3772	B6
3773	B5
3774	B6
3775	B5
3776	C5
3777	C5
3778	B5
3779	B5
3780	C6
3781	C6
3785	C5
3786	B4
3787	C5
3788	B3
3789	D5
3790	C3
3791	C4
3792	C3
3793	C4
3794	C4
3795	D5
3796	B3
3797	B3
3798	B3
3799	B3
3800	B1
3801	B2
3802	D8
3803	D8
3804	D7
3805	D8
3806	D8
3807	D8
3808	D8
3809	D7
3810	D7
3901	B8
3902	C8
3903	C8
3904	C8
3905	C8
3906	C7
3907	C8
3908	C7
3909	C7
3910	C7
3911	C7
3912	B7
3913	B6
5650	J4
5652	J4
5900	B7
6652	I2
6653	K1
6654	K8
6656	J8
6664	J3
6665	J3
6666	J3
6667	J2
6780	B4
6781	B5
6782	C5
6783	C5
6790	B3
6800	C8
6801	C8
7650	L3
7654	I1
7655	I1
7656	J7
7663	K8
7664	L2
7665	J8
7666	L2
7671	H2
7672	I2
7673	J2
7674	I2
7684	L5
7690	C4
7691	C4
7692	B3
7785	A4
7786	C5
7787	B5
7788	D5
7789	D5
7800	D8
7900	B7
8501	D2
8502	C2
8503	C2
9601	B1
9603	B2
9604	I1
9605	J1
9606	K1
9607	K1
9608	H1
9609	J2
9610	K2
9611	K2
9612	L2
9613	B2
9614	B2
9615	L2
9616	J2
9617	I2
9622	K2
9623	I2
9625	K2
9627	K3
9629	K3
9633	I3
9635	L3
9639	I3
9640	I3
9641	L2
9642	I3
9659	J3
9662	J4
9665	L4
9666	K3
9669	I4
9670	I4
9671	K4
9674	K3
9676	I4
9678	I4
9682	L4
9686	K4
9688	I3
9690	J4
9691	K4
9695	B5
9697	B5
9699	K5
9700	K5
9706	K5
9710	C5
9713	K5
9715	L5
9717	K5
9720	J5
9721	K6
9724	I5
9725	I5
9726	J6
9732	C6
9737	I6
9738	L6
9741	K6
9743	I6
9745	J6
9746	K6
9748	I6
9749	J6
9750	L6
9752	I6
9753	L6
9754	J6
9755	I8
9756	J6
9757	J6
9758	H6
9759	K7
9760	B6
9764	H8
9770	J7
9773	K7
9779	C8
9780	I8
9781	H8
9783	D1
9784	J2
9786	L3
9788	K5
9790	A6
9791	A5
9798	I1
9799	C1
9800	H4
9801	J7
9802	D4
9803	K7
9804	K7

FRONT

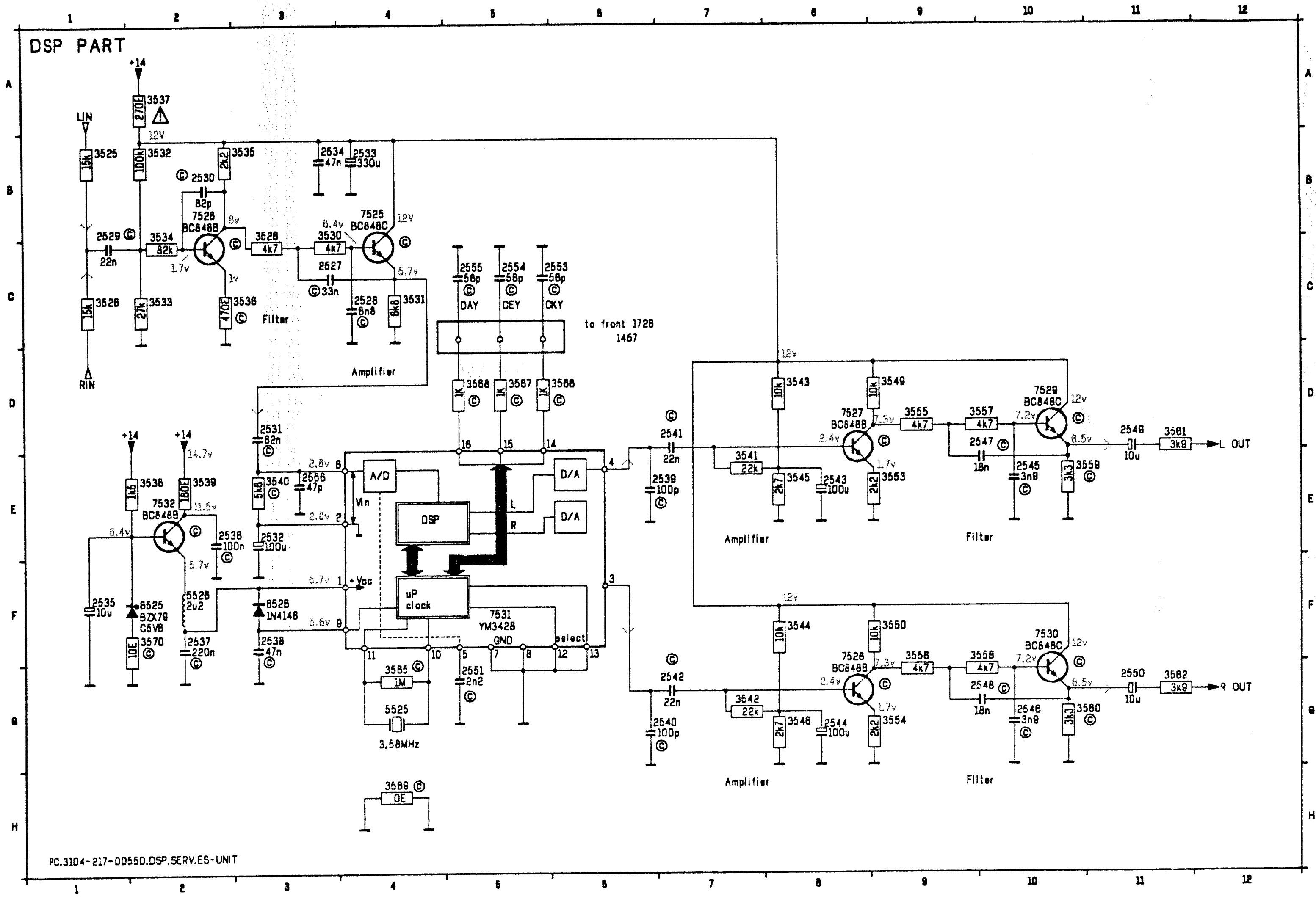


P7 I/O PORTS
P8 O.PORTS
P9 I/O PORTS
VFT DRIVER CIRCUIT
P6 I/O PORTS
PROGRAM COUNTER
PROGRAM MEMORY
INST.
INST. DECODER
6 BIT A/D CONVERTER
RESET
TEST
ALU
SYSTEM CONTROLLER
INTERRUPT CONTROLLER
16-BIT TIMER COUNTER
8-BIT TIMER COUNTER
SERIAL INTERFACES
P S W
FLAGS
RBS
STACK POINTER
DATA MEMORY
REGISTER BANKS
STANDBY CONTROLLER
TIMING GENERATOR
CLOCK GENERATOR
HIGH FREQ
LOW FREQ
TIME BASE TIMER
WATCHDOG TIMER
P4 I/O PORTS
P5 I/O PORTS
P0 I/O PORTS
P3 I/O PORTS
P1 I/O PORTS
7883 TMP87CH70F 16k
TO FTD
TO KEYS
FROM uP
TO SOURCE SELECTOR UNIT 1752
1726
TO DSP PART 1457
CLK YA
AO YA
DA YA
SURROUND
FROM POWER UNIT 1282
1720
AC 2
AC 1
RC5
STAND BY
-VKK TO R3853
E OUT FROM PIN 75 IC7883
E IN TO PIN 2 IC7883
6862 GP1U520X IR EYE
FROM 1720 RC5
LED VOLUME KNOB
DSP
6853 LT3P82A
5850 8MHz CST
RESET ON = LOW
RESET OFF = HIGH
7884 ST24C02CP
EEPROM MEMORY
FROM 18 7883
STAND BY
ST/BY ON = HIGH
ST/BY OFF = LOW
DBB ON = LOW
DBB OFF = HIGH
SURROUND TO 1726
TO TOP COVER
TO 1721
TO 1726
TO 1724
FROM 1724
TO 1720 E OUT
EIN TO 1726 FROM 1720
FROM 1720
DSP DEC
FLAT
+10
0
-10
63 160 400 1K 2.5K 6.3K 16K FLAT
1 2 3 4 5
6 7 8 9 10
SURROUND
PRESENCE
HALL
STADIUM
LIVE
CONCERT
1682
7871 BC548B
7872 BC548B
7873 BC548B
7874 BC548B
7856 BC548B
7854 BC558B
7855 BC548B
7850 BC548B
7864 BC548B
7888 BC548B
7883 BC548B
1N4148
TO TOP COVER
PC.3104-217-00520.SERV.ES-UNIT

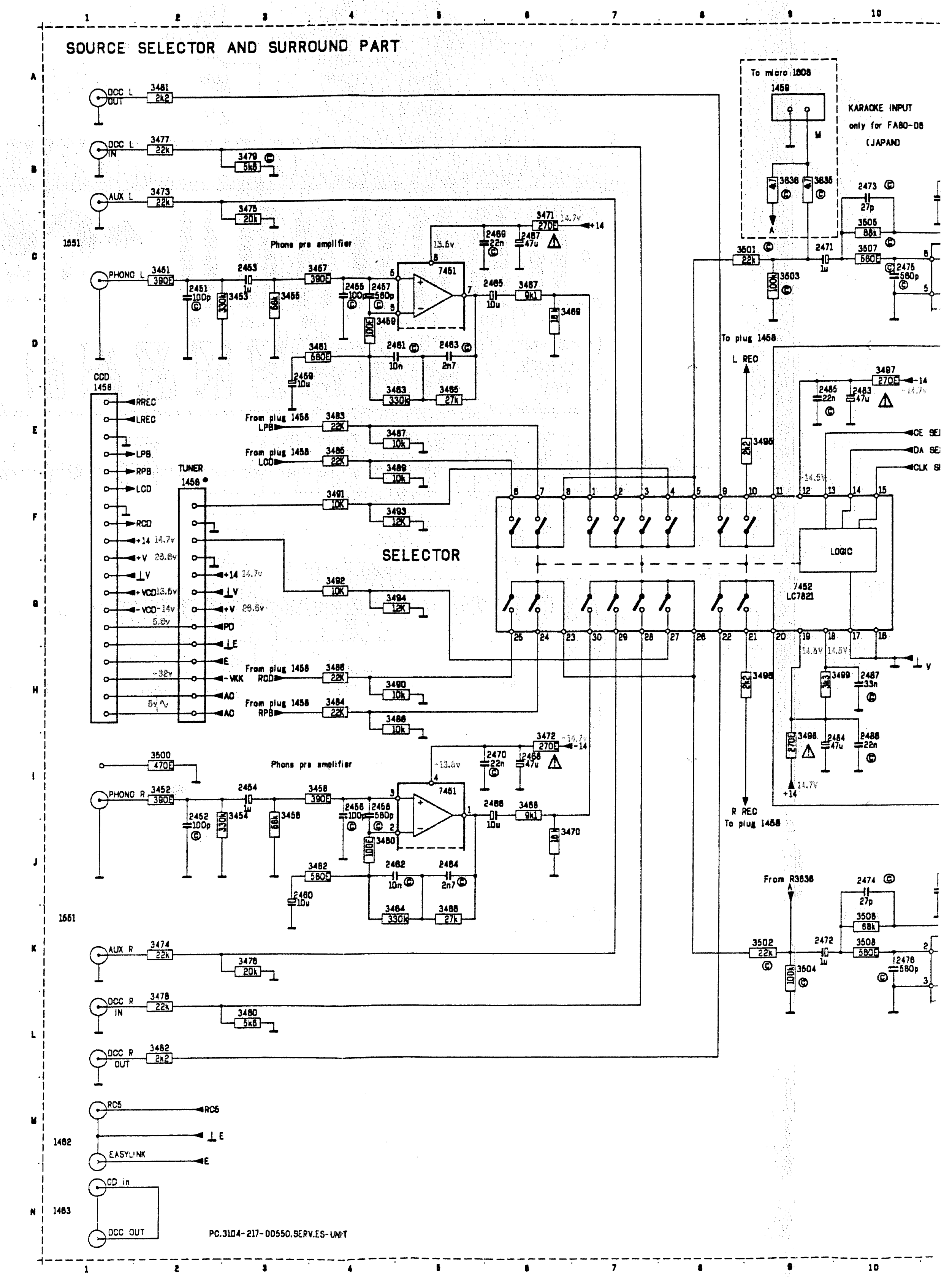


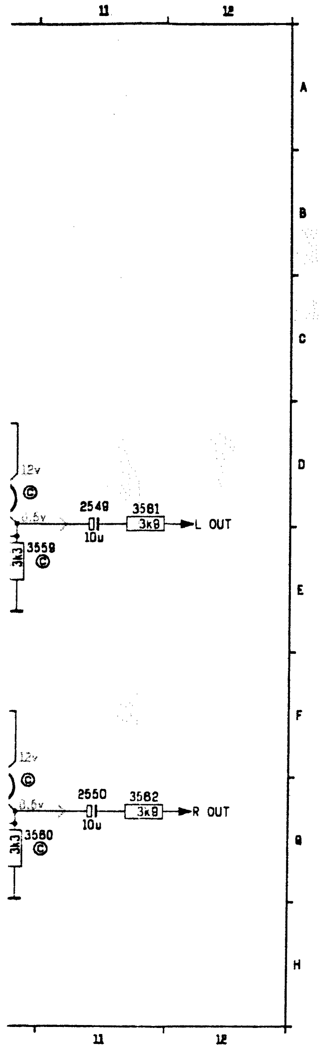
+10
0
-10
63
160
400
1K
2.5K
6.3K
16K
FLAT
SURROUND
PRESENCE
HALL
STADIUM
LIVE
CONCERT
1 ◄ 2 ◄ 3 ◄ 4 ◄ 5 ◄
6 ◄ 7 ◄ 8 ◄ 9 ◄ 10 ◄
1882
TO FTD
P7 I/O PORTS
P8 O.PORTS
P9 I/O PORTS
VFT DRIVER CIRCUIT
P6 I/O PORTS
PROGRAM COUNTER
PROGRAM MEMORY
INST.
INST. DECODER
6 BIT A/D CONVERTER
ALU
P S W
FLAGS
RBS
STACK POINTER
DATA MEMORY
REGISTER BANKS
RESET
TEST
SYSTEM CONTROLLER
STANDBY CONTROLLER
TIMING GENERATOR
CLOCK GENERATOR
HIGH FREQ
LOW FREQ
INTERRUPT CONTROLLER
16-BIT TIMER COUNTER
8-BIT TIMER COUNTER
SERIAL INTERFACES
TIME BASE TIMER
WATCHDOG TIMER
7883 TMP87CH70F 18k
P4 I/O PORTS
P5 I/O PORTS
P0 I/O PORTS
P3 I/O PORTS
P1 I/O PORTS
TO FTD
FROM 1720
TO 1720
E OUT
FROM 1724
TO 1726
TO 1721
TO 1726
TO 1724
EIN TO 1726
FROM 1720
5850 8MHz CST
RESET ON = LOW
RESET OFF= HIGH
7884 ST24C02CP EEPROM MEMORY
FROM 18 7883
ST/BY ON = HIGH
ST/BY OFF=LOW
STAND BY
7864 BC548B
LED VOLUME KNOB
6001
DSP 6653 LT3P82A
FROM 1720 RC5
SURROUND TO 1726
DBB ON = LOW
DBB OFF=HIGH
DBB 6654 LT3P82A
7863 BC548B
7865 BC548B
FROM uP
TO SPECTRUM ANALYZER UNIT 1722 1721
GND
DBB
CAP SW
S.A.
SEL 3
SEL 2
SEL 1
VOLUME UP
VOLUME DOWN
+5A
FROM KEY COMMON OUTPUTS
FROM KEY COMMON OUTPUTS
1876 DSP DSC
1874 FLAT
1875 PRESET
1877 PROGRAM
1871 SELECT LEFT
1872 SELECT RIGHT
1873 MULTI LANG
1878 DCC
1870 ADJUST DOWN
1869 ADJUST UP
1867 SURROUND
1868 DBB
1866 AUX PHONO
30K
31K
32K
29K
7871 BC548B
7872 BC548B
7873 BC548B
7874 BC548B
-VKK
-32v
AC1
AC2
3700
3701
3851 4E7
2650 470n

1666	L27
1667	L27
1668	M25
1669	L26
1670	L25
1671	L23
1672	L24
1673	K23
1674	L22
1675	L22
1676	L21
1677	L23
1678	M24
1720	L5
1721	N28
1726	K2
2650	O20
2651	I7
2652	P6
2653	P12
2654	Q13
2655	Q14
2656	I7
2658	I8
2673	C10
2674	D19
2679	P16
2685	P3
3650	P14
3651	Q13
3653	G20
3654	P7
3655	P8
3656	Q8
3657	Q8
3658	P10
3659	O10
3660	O9
3661	O10
3666	N6
3667	O6
3669	Q13
3671	O22
3673	O21
3674	Q17
3675	O23
3676	P23
3677	N8
3680	P11
3682	Q11
3683	P27
3684	P27
3690	A10
3691	B11
3692	A12
3693	B13
3694	A14
3695	B14
3696	A15
3697	B15
3700	C19
3701	B10
3705	K8
3706	K8
3707	K7
3708	K7
3712	H5
3713	H4
3714	O4
3718	N8
3719	N4
3720	J4
3721	J4
3722	J4
3723	L4
3724	N4
3725	O4
3726	H5
3727	I4
3736	M26
3737	M26
3738	M27
3739	P27
3740	O27
3741	O27
3742	O27
3743	O27
3745	M26
3746	O3
5650	O13
5652	I8
6001	O8
6652	P7
6653	M8
6654	O23
6656	O3
6664	K8
6665	K8
6666	J8
6667	J8
7650	P14
7654	P8
7655	P9
7656	O9
7663	O22
7664	Q18
7665	O23
7666	N8
7671	A11
7672	A12
7673	A14
7674	A15
7683	M17
7684	P15


DSP PART
LIN
RIN
Filter
Amplifier
to front 1728
1457
DAY
CEY
CKY
A/D
DSP
D/A
uP
clock
7531
YM3428
GND
select
5525
3.58MHz
L OUT
R OUT
Amplifier
Filter
7525 BC848C
7526 BC848B
7527 BC848B
7528 BC848B
7529 BC848C
7530 BC848C
7532 BC848B
6525 BZX79 C5V6
6526 1N4148
PC.3104-217-00550.DSP.SERV.ES-UNIT

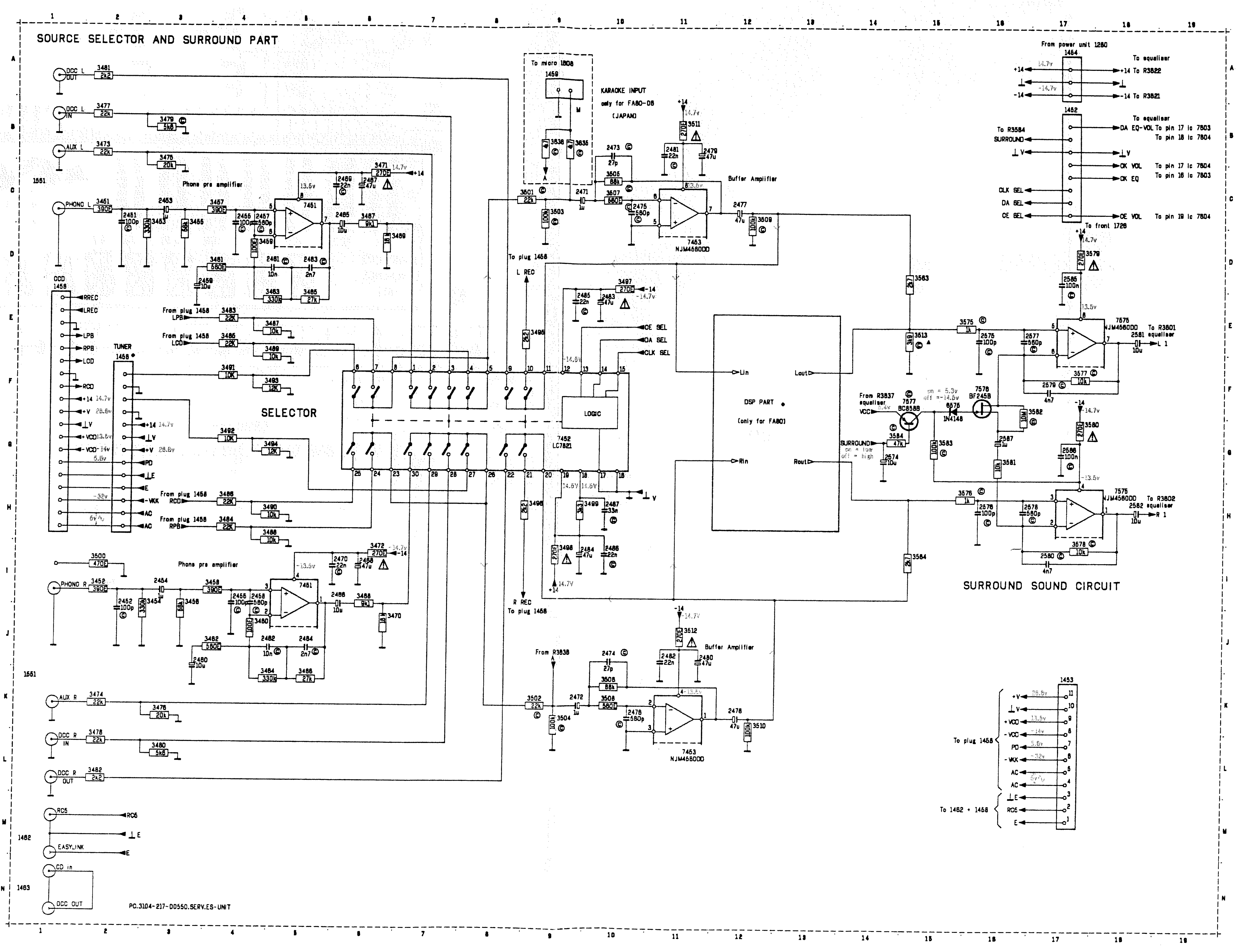
2530	B2	3566	D6
7526	B2	3567	D5
3525	B1	3568	D5
3561	D11	3570	F2
3562	G11	2544	G8
2549	D11	2543	E8
2550	G11	2553	C5
7529	D10	2554	C5
7530	F10	2555	C5
3559	E10	3569	H4
3560	G10	2556	E3
7531	F5	3537	A2
2539	E6	3526	C1
2540	G6		
2541	D7		
2542	G7		
2545	E10		
2546	G10		
2547	D10		
2548	G10		
3541	E7		
3542	G7		
3543	D8		
3544	F8		
3545	E8		
3546	G8		
3549	D9		
3550	F9		
3553	E9		
3554	G9		
3555	D9		
3556	F9		
3557	D10		
3558	F10		
7527	D8		
7528	F8		
2551	G5		
3565	G4		
2535	F1		
6525	F2		
2537	F2		
6526	F3		
2538	F3		
2532	E3		
2536	E2		
7532	E2		
3538	E2		
3539	E2		
3540	E3		
2531	D3		
5525	G4		
3528	B3		
3530	B3		
3531	C4		
3532	B2		
3533	C2		
3534	B2		
3535	B3		
3536	C3		
2528	C4		
2529	B1		
2527	C3		
2533	B4		
2534	B3		
7525	B4		
2u2	F2		


SOURCE SELECTOR AND SURROUND PART
DCC L OUT
DCC L IN
AUX L
PHONO L
Phono pre amplifier
7451
CCD 1458
TUNER 1456
SELECTOR
LOGIC
7452 LC7821
PHONO R
AUX R
DCC R IN
DCC R OUT
RC5
EASY_LINK
CD in
DCC OUT
To micro 1808
KARAOKE INPUT only for FA80-08 (JAPAN)
To plug 1458
L REC
R REC
From R3838
PC.3104-217-00550.SERV.ES-UNIT


11
12
12v
2549
10u
3561
3k9
L OUT
3559
3k3
2550
10u
3562
3k9
R OUT
3560
3k3
11
12

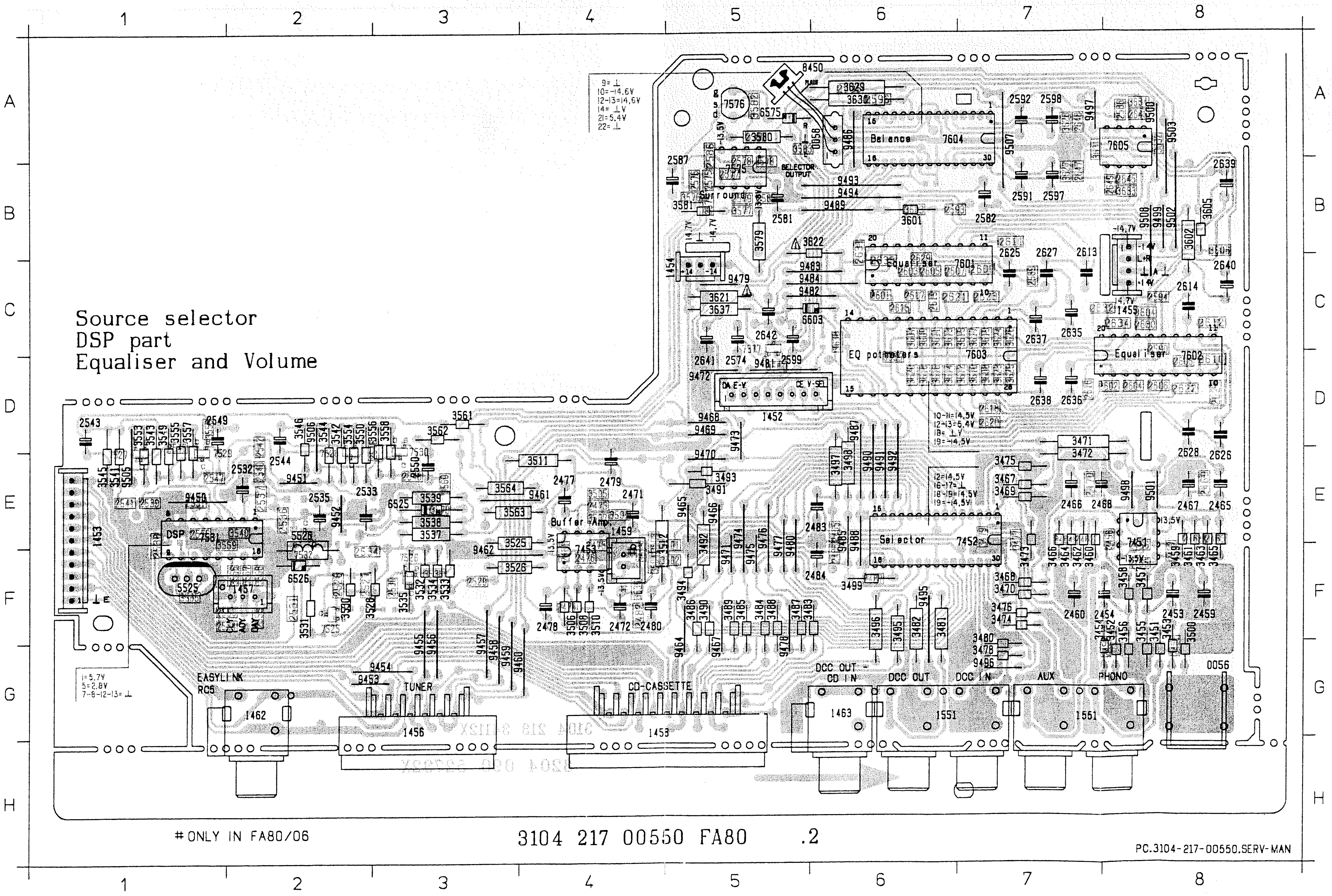
2530	B2	3566	D6
7526	B2	3567	D5
3525	B1	3568	D5
3561	D11	3570	F2
3562	G11	2544	G8
2549	D11	2543	E8
2550	G11	2553	C5
7529	D10	2554	C5
7530	F10	2555	C5
3559	E10	3569	H4
3560	G10	2556	E3
7531	F5	3537	A2
2539	E6	3526	C1
2540	G6		
2541	D7		
2542	G7		
2545	E10		
2546	G10		
2547	D10		
2548	G10		
3541	E7		
3542	G7		
3543	D8		
3544	F8		
3545	E8		
3546	G8		
3549	D9		
3550	F9		
3553	E9		
3554	G9		
3555	D9		
3556	F9		
3557	D10		
3558	F10		
7527	D8		
7528	F8		
2551	G5		
3565	G4		
2535	F1		
6525	F2		
2537	F2		
6526	F3		
2538	F3		
2532	E3		
2536	E2		
7532	E2		
3538	E2		
3539	E2		
3540	E3		
2531	D3		
5525	G4		
3528	B3		
3530	B3		
3531	C4		
3532	B2		
3533	C2		
3534	B2		
3535	B3		
3536	C3		
2528	C4		
2529	B1		
2527	C3		
2533	B4		
2534	B3		
7525	B4		
2u2	F2		

SOURCE SELECTOR AND SURROUND PART


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
A B C D E F G H I J K L M N
1551
DCC L OUT
3481 2k2
DCC L IN
3477 22k
3479 5k6
AUX L
3473 22k
3475 20k
Phono pre amplifier
PHONO L
3451 390E
2451 100p
3453 330k
2453 1u
3455 56k
3457 390E
2455 100p
2457 560p
3459 100E
7451
2469 22n
2467 47u
3471 270E
+14
14.7v
13.5v
2465 10u
3467 9k1
3469 16k
3461 560E
2459 10u
2461 10n
2463 2n7
3463 330k
3465 27k
CCD 1458
RREC
LREC
LPB
RPB
LCD
RCD
+14
+V
⊥V
+VCC
-VCC
PD
⊥E
E
-VKK
AC
AC
TUNER 1456
From plug 1458 LPB
3483 22K
3487 10k
From plug 1458 LCD
3485 22K
3489 10k
3491 10K
3493 12K
3492 10K
3494 12K
SELECTOR
From plug 1458 RCD
3486 22K
3490 10k
From plug 1458 RPB
3484 22K
3488 10k
7452 LC7821
LOGIC
To micro 1808
1459
M
A
3638 47
3635 47
KARAOKE INPUT
only for FA80-D8
(JAPAN)
3501 22k
3503 100k
2471 1u
2473 27p
3505 68k
3507 560E
2475 560p
2481 22n
2479 47u
3511 270E
Buffer Amplifier
7453 NJM4560DD
2477 47u
3509 100k
To plug 1458
L REC
3495 2k2
3497 270E
-14
-14.7v
2485 22n
2483 47u
CE SEL
DA SEL
CLK SEL
Lin
Lout
DSP PART
(only for FA80)
Rin
Rout
3496 2k2
3499 3k3
2487 33n
3498 270E
2484 47u
2486 22n
+14
14.7V
R REC
To plug 1458
3500 470E
Phone pre amplifier
PHONO R
3452 390E
2452 100p
3454 330k
2454 1u
3456 56k
3458 390E
2456 100p
2458 560p
3460 100E
7451
2470 22n
2468 47u
3472 270E
2466 10u
3468 9k1
3470 16k
3462 560E
2460 10u
2462 10n
2464 2n7
3464 330k
3466 27k
AUX R
3474 22k
3476 20k
DCC R IN
3478 22k
3480 5k6
DCC R OUT
3482 2k2
From R3838
3502 22k
3504 100k
2472 1u
2474 27p
3506 68k
3508 560E
2478 560p
2482 22n
2480 47u
3512 270E
Buffer Amplifier
7453 NJM4560DD
2476 47u
3510 100k
1482
RC5
EASY_LINK
1483
CD in
DCC OUT
PC.3104-217-00550.SERV.ES-UNIT
From power unit 1280
1464
+14
-14
To equaliser
+14 To R3822
-14 To R3821
1462
To equaliser
DA EQ-VOL To pin 17 Ic 7803
To pin 18 Ic 7804
To R3584
SURROUND
⊥V
CK VOL To pin 17 Ic 7804
CK EQ To pin 16 Ic 7803
CLK SEL
DA SEL
CE SEL
CE VOL To pin 19 Ic 7804
To front 1728
3579 270E
2585 100n
3563 2k7
3613 3k9
3575 1k
2575 100p
2577 560p
7575 NJM4560DD
To R3801 equaliser
2581 10u
L 1
3577 10k
2579 4n7
From R3837 equaliser
VCC
7577 BC858B
on = 5.3v
off = -14.6v
6576 1N4148
7578 BF245B
3582 10k
SURROUND
3584 47k
2574 10u
3583 1k
2587
3581 10k
3580 270E
2586 100n
-14
3576 1k
2576 100p
2578 560p
7575 NJM4560DD
To R3802 equaliser
2582 10u
R 1
3578 10k
2580 4n7
3564 2k7
SURROUND SOUND CIRCUIT
1453
To plug 1458
+V
⊥V
+VCC
-VCC
PD
-VKK
AC
AC
⊥E
RC5
E
To 1482 + 1458

2451	C2	3577	F17
2452	J2	3578	I17
2453	C3	3579	D17
2454	I3	3580	G17
2455	C4	3581	G16
2456	I4	3582	F16
2457	C4	3583	G15
2458	I4	3584	D14
2459	D3	3635	B9
2460	J3	3636	B9
2461	D4	6575	F15
2462	J4	7451	C5
2463	D5	7451	I5
2464	J5	7452	G9
2465	C6	7453	D11
2466	I6	7453	L11
2467	C6	7575	E18
2468	I6	7575	H18
2469	C6	7578	F18
2470	I6	7577	F15
2471	C9		
2472	K9		
2473	B10		
2474	J10		
2475	C10		
2476	K10		
2477	C12		
2478	K12		
2479	B11		
2480	J11		
2481	B11		
2482	J11		
2483	E10		
2484	I8		
2485	E8		
2486	I10		
2487	H10		
2574	D14		
2575	E16		
2576	H16		
2577	E16		
2578	H16		
2579	F17		
2580	I17		
2581	E18		
2582	H18		
2585	D17		
2586	G17		
2587	G18		
3451	C2		
3452	I2		
3453	D3		
3454	J3		
3455	D3		
3456	J3		
3457	C4		
3458	I4		
3459	D4		
3460	J4		
3461	D4		
3462	J4		
3463	E4		
3464	K4		
3465	E5		
3466	K5		
3467	C6		
3468	I6		
3469	D6		
3470	J6		
3471	C6		
3472	I6		
3473	B2		
3474	K2		
3475	C3		
3476	K3		
3477	B2		
3478	L2		
3479	B3		
3480	L3		
3481	A2		
3482	L2		
3483	E4		
3484	H4		
3485	E4		
3486	H4		
3487	E4		
3488	H4		
3489	F4		
3490	H4		
3491	F4		
3492	G4		
3493	F4		
3494	G4		
3495	E9		
3496	H9		
3497	D10		
3498	I9		
3499	H9		
3500	I2		
3501	C8		
3502	K9		
3503	C9		
3504	K9		
3505	C10		
3506	K10		
3507	C10		
3508	K10		
3509	C12		
3510	K12		
3511	B11		
3512	J11		
3513	E15		
3563	D15		
3564	I15		
3575	E15		
3576	H15		

0056	G8
0058	A6
1452	D5
1453	E1
1454	C5
1455	C8
1456	G3
1457	F2
1458	G4
1459	E4
1462	G2
1463	G6
1551	G6
2453	F8
2454	F8
2459	F8
2460	F7
2465	E8
2466	E7
2467	E8
2468	E7
2471	E4
2472	F4
2477	E4
2478	F4
2479	E4
2480	F4
2483	E6
2484	F6
2532	E2
2533	E2
2535	E2
2543	D1
2544	E2
2549	D1
2550	E3
2574	D5
2581	B5
2582	B7
2587	A5
2591	B7
2592	A7
2597	B7
2598	A7
2599	D5
2613	C7
2614	C8
2625	C7
2626	E8
2627	C7
2628	E8
2635	C7
2636	D7
2637	C7
2638	D7
2639	B8
2640	C8
2641	D5
2642	C5
3451	F8
3452	F8
3453	F8
3454	F7
3455	F8
3456	F8
3457	F8
3458	F8
3459	F8
3460	F7
3461	F8
3462	F7
3463	F8
3464	F7
3465	F8
3466	F7
3467	E7
3468	F7
3469	E7
3470	F7
3471	D7
3472	E7
3473	F7
3474	F7
3475	E7
3476	F7
3478	G7
3480	G7
3481	F6
3482	F6
3483	F6
3484	F5
3485	F5
3486	F5
3487	F5
3488	F5
3489	F5
3490	F5
3491	E5
3492	E5
3493	E5
3494	F5
3495	F6
3496	F6
3497	E6
3498	E6
3499	F6
3500	F8
3506	F4
3508	F4
3510	F4
3511	E4
3512	E5
3525	E3
3526	F3
3528	F3
3530	F2
3531	F2
3532	F3
3533	F3
3534	F3
3535	F3
3537	E3
3538	E3
3539	E3
3541	E1
3542	D2
3543	D1
3544	D2
3545	E1
3546	D2
3549	D1
3550	D2
3553	D1
3554	D2
3555	D1
3556	D3
3557	D1
3558	D3
3561	D3
3562	D3
3563	E3
3564	E3
3579	B5
3580	A5
3581	B5
3601	B6
3602	B8
3605	B8
3621	C5
3622	B6
3629	A6
3630	A6
3637	C5
5525	F1
5526	E2
6525	E3
6526	F2
6575	A5
6603	C6
7451	F8
7452	F7
7453	F4
7531	E1
7575	B5
7576	A5
7601	C7
7602	D8
7603	D7
7604	A6
7605	A8
8450	A6
9450	E1
9451	E2
9452	E2
9453	G2
9454	G3
9455	F3
9456	F3
9457	F3
9458	G3
9459	G3
9460	G4
9461	E4
9462	F3
9464	G5
9465	E5
9466	E5
9467	G5
9468	D5
9469	D5
9470	E5
9471	F5
9472	D5
9473	D5
9474	E5
9475	F5
9476	E5
9477	E5
9478	G5
9479	C5
9480	E5
9481	D5
9482	C5
9483	C5
9484	C5
9485	E6
9486	A6
9487	D6
9488	E6
9489	B6
9490	E6
9491	E6
9492	E6
9493	B6
9494	B6
9495	F6
9486	G7
9497	A7
9498	E8
9499	B8
9500	A8
9501	E8
9502	B8
9503	A8
9505	E1
9506	D2
9507	A7
9508	B8


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
Balance
7604
Surround
SELECTOR OUTPUT
Equaliser
7601
EQ potmeters
7603
Equaliser
7602
DSP
7531
Buffer Amp.
7453
Selector
7452
7451
EASYLINK RC5
1462
TUNER
1456
CD-CASSETTE
1458
DCC OUT - CD IN
DCC OUT
DCC IN
1463
1551
AUX
PHONO
1551
0056
1452
1453
1454
1455
1457
8450
7576
7605
9= ⊥
10=-14,6V
12-13=14,6V
14= ⊥V
21=5,4V
22= ⊥
10-11=14,5V
12-13=5,4V
18= ⊥V
19=-14,5V
12=14,5V
16-17= ⊥
18-19=14,5V
19=-14,5V
1=5,7V
5=2,8V
7-8-12-13= ⊥

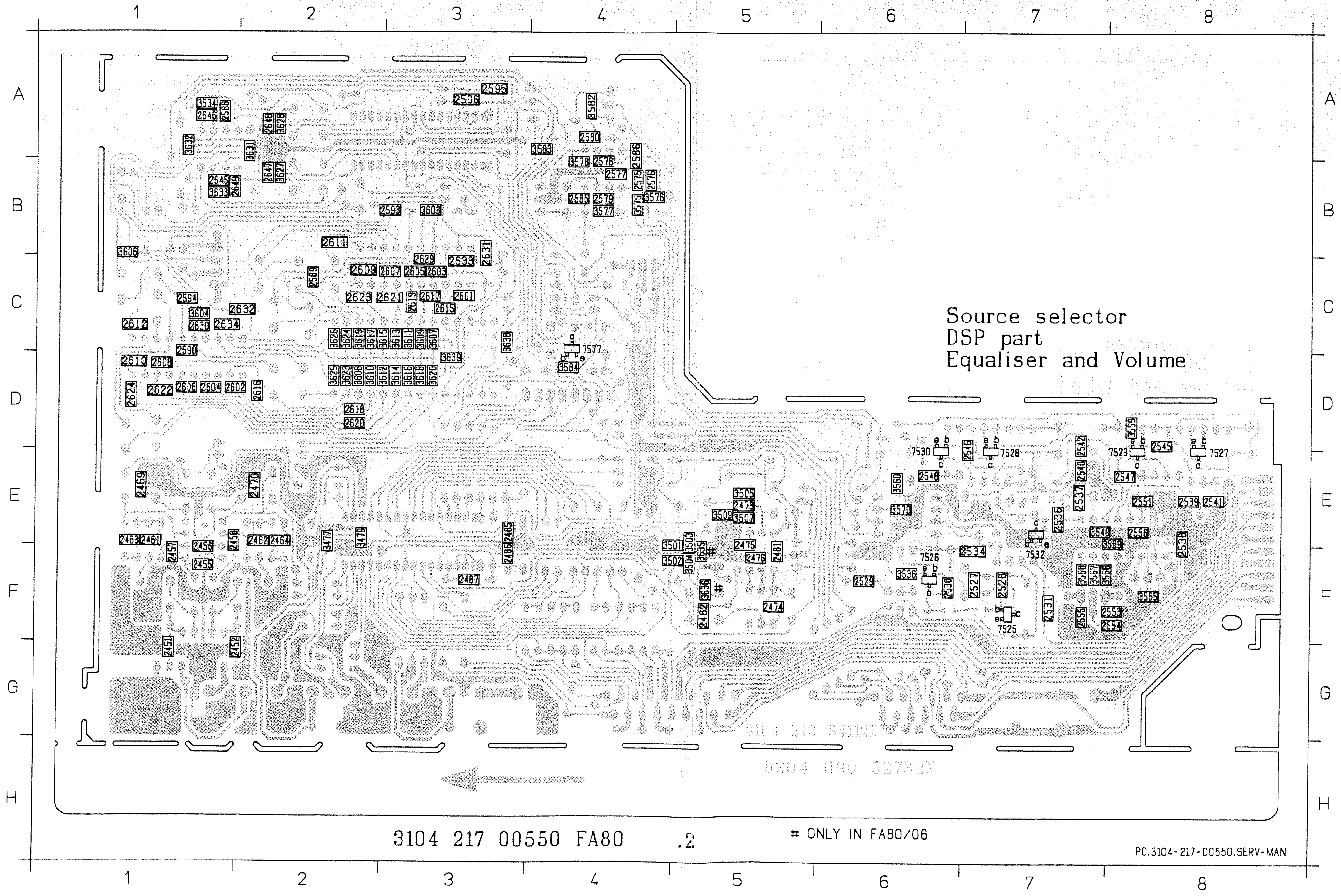
Source selector
DSP part
Equaliser and Volume

ONLY IN FA80/06

3104 217 00550 FA80 .2

PC.3104-217-00550.SERV-MAN

2451	G1
2452	G2
2455	F1
2456	F1
2457	F1
2458	E2
2461	F1
2462	F2
2463	F1
2464	F2
2469	E1
2470	E2
2473	E5
2474	F5
2475	F5
2476	F5
2481	F5
2482	F5
2485	E3
2486	F3
2487	F3
2527	F7
2528	F7
2529	F8
2530	F6
2531	F7
2534	F7
2536	E7
2537	E7
2538	E8
2539	E8
2540	E7
2541	E8
2542	D7
2545	D8
2546	D7
2547	E8
2548	E6
2551	E8
2553	F8
2554	F8
2555	F7
2556	E8
2575	B4
2576	B4
2577	B4
2578	B4
2579	B4
2580	A4
2585	B4
2586	A4
2588	A1
2589	C2
2590	D1
2593	B3
2594	C1
2595	A3
2596	A3
2601	C3
2602	D1
2603	C3
2604	D1
2605	C3
2606	D1
2607	C3
2608	D1
2609	C2
2610	D1
2611	B2
2612	C1
2615	C3
2616	D2
2617	C3
2618	D2
2619	C3
2620	D2
2621	C3
2622	D1
2623	C2
2624	D1
2629	C3
2630	C1
2631	B3
2632	C2
2633	C3
2634	C1
2645	B1
2646	A1
2647	B2
2648	A2
2649	B1
3477	E2
3479	E2
3501	F5
3502	F5
3503	E5
3504	F5
3505	E5
3507	E5
3509	E5
3536	F6
3540	E7
3559	D8
3560	E6
3565	F8
3566	F8
3567	F7
3568	F7
3569	F8
3570	E6
3575	B4
3576	B4
3577	B4
3578	B4
3582	A4
3583	A4
3584	D4
3603	B3
3604	C1
3606	C1
3607	C3
3608	D2
3609	C3
3610	D2
3611	C3
3612	D3
3613	C3
3614	D3
3615	C3
3616	D3
3617	C2
3618	D3
3619	C2
3620	D3
3623	D2
3624	C2
3625	D2
3626	C2
3627	B2
3628	A2
3631	A2
3632	A1
3633	B1
3634	A1
3635	F5
3636	F5
3638	C3
3639	D3
7525	F7
7526	F6
7527	D8
7528	D7
7529	E8
7530	E6
7532	F7
7577	C4



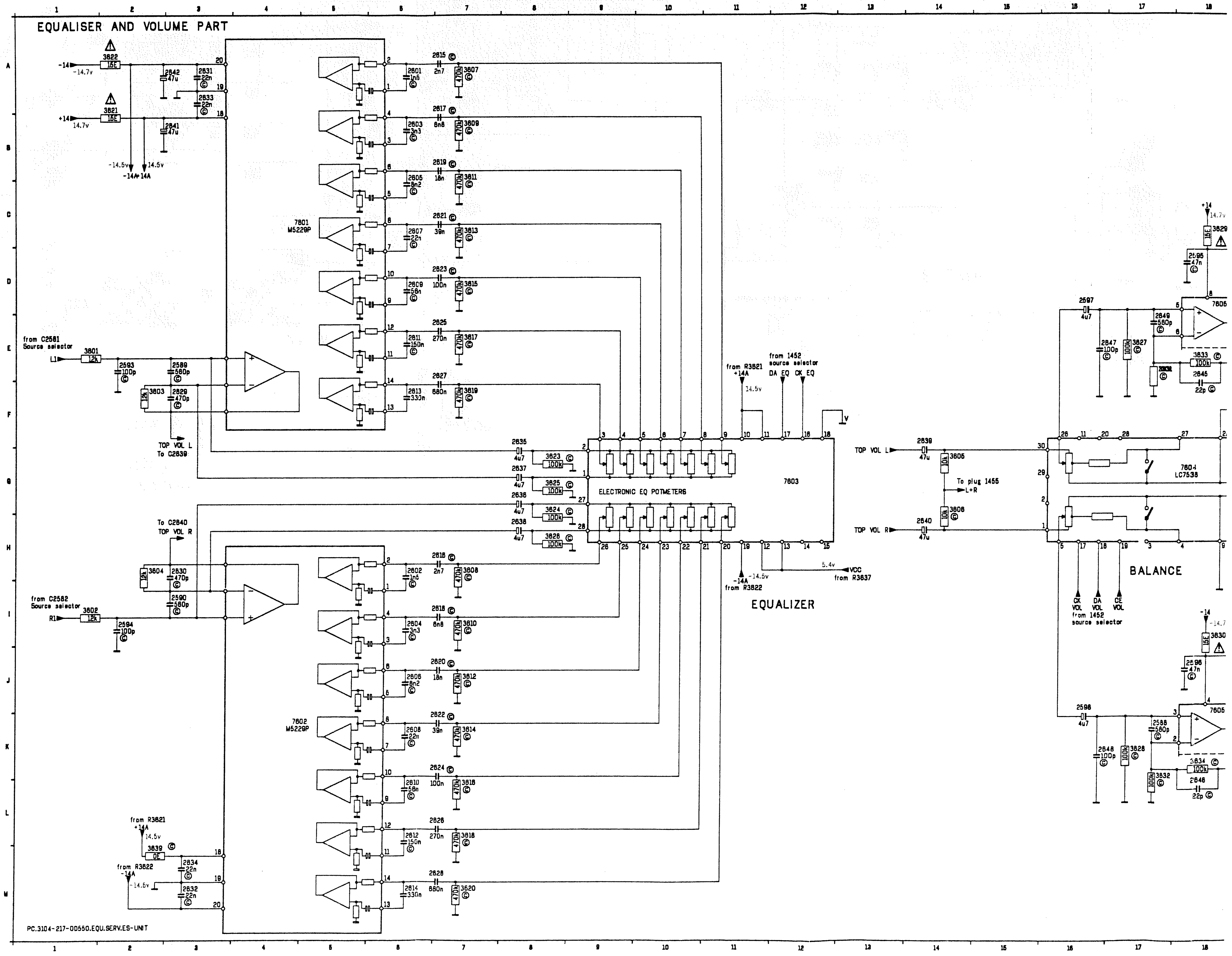
Source selector
DSP part
Equaliser and Volume

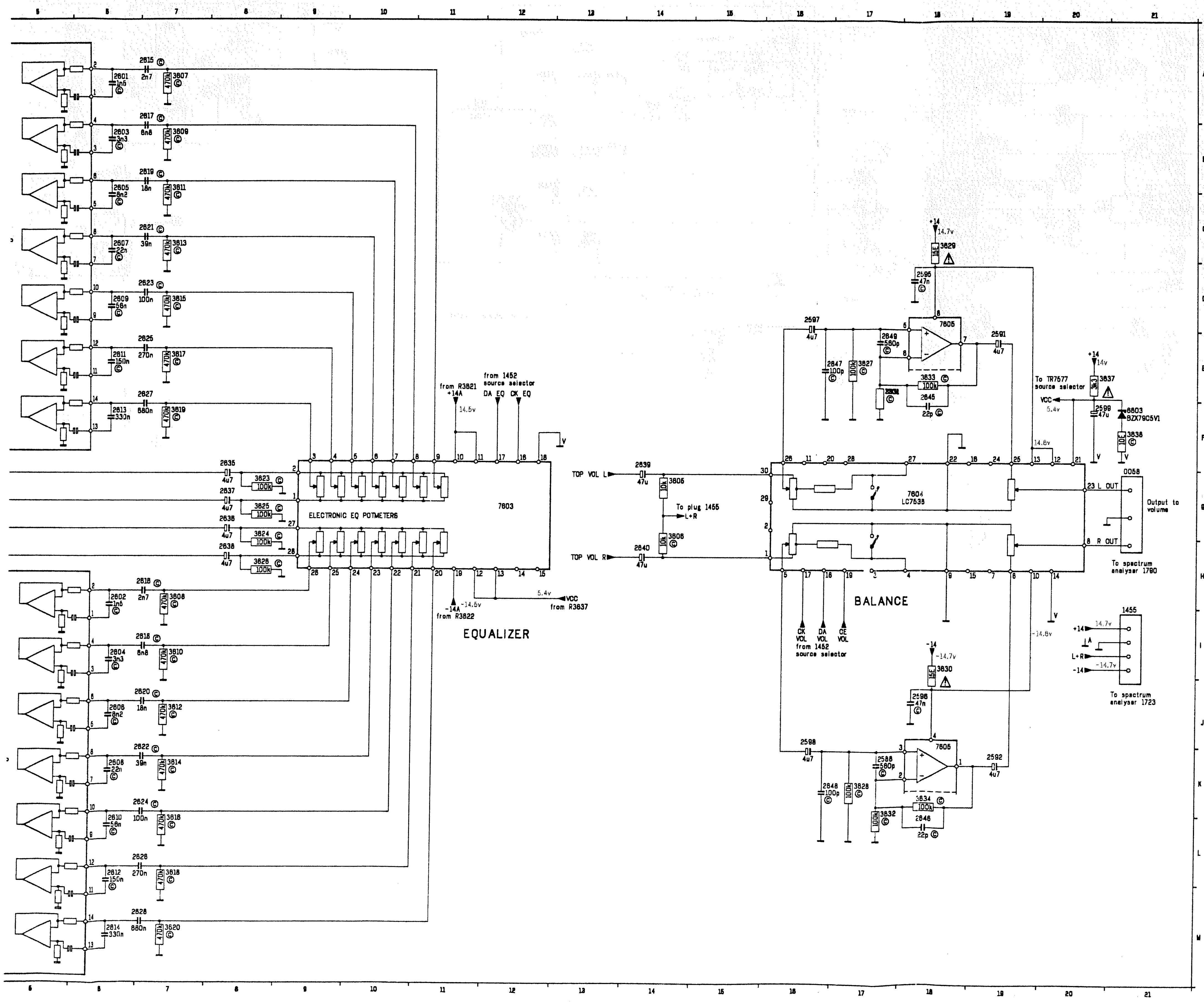
3104 217 00550 FA80 .2

ONLY IN FA80/06

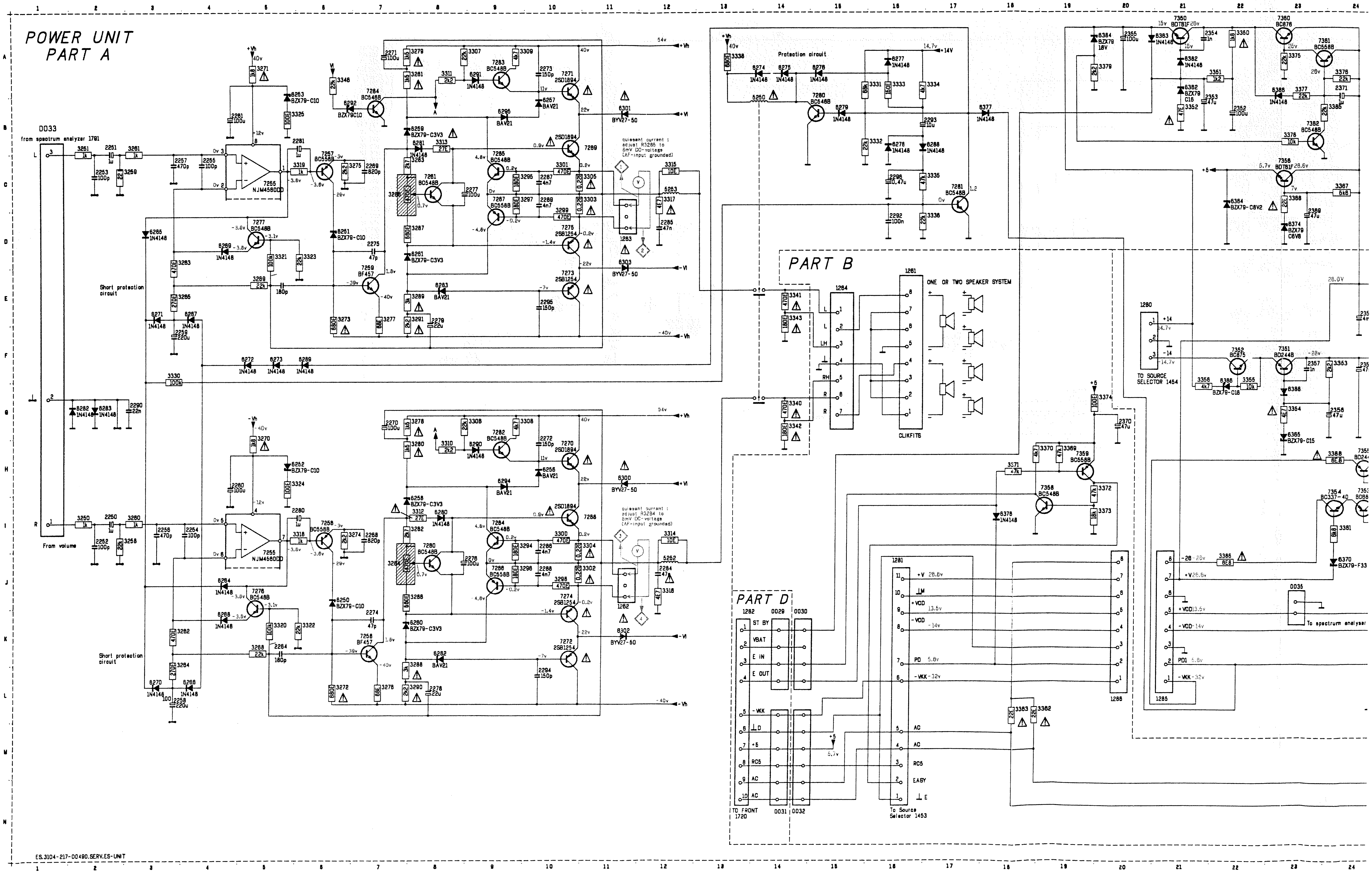
PC.3104-217-00550.SERV-MAN

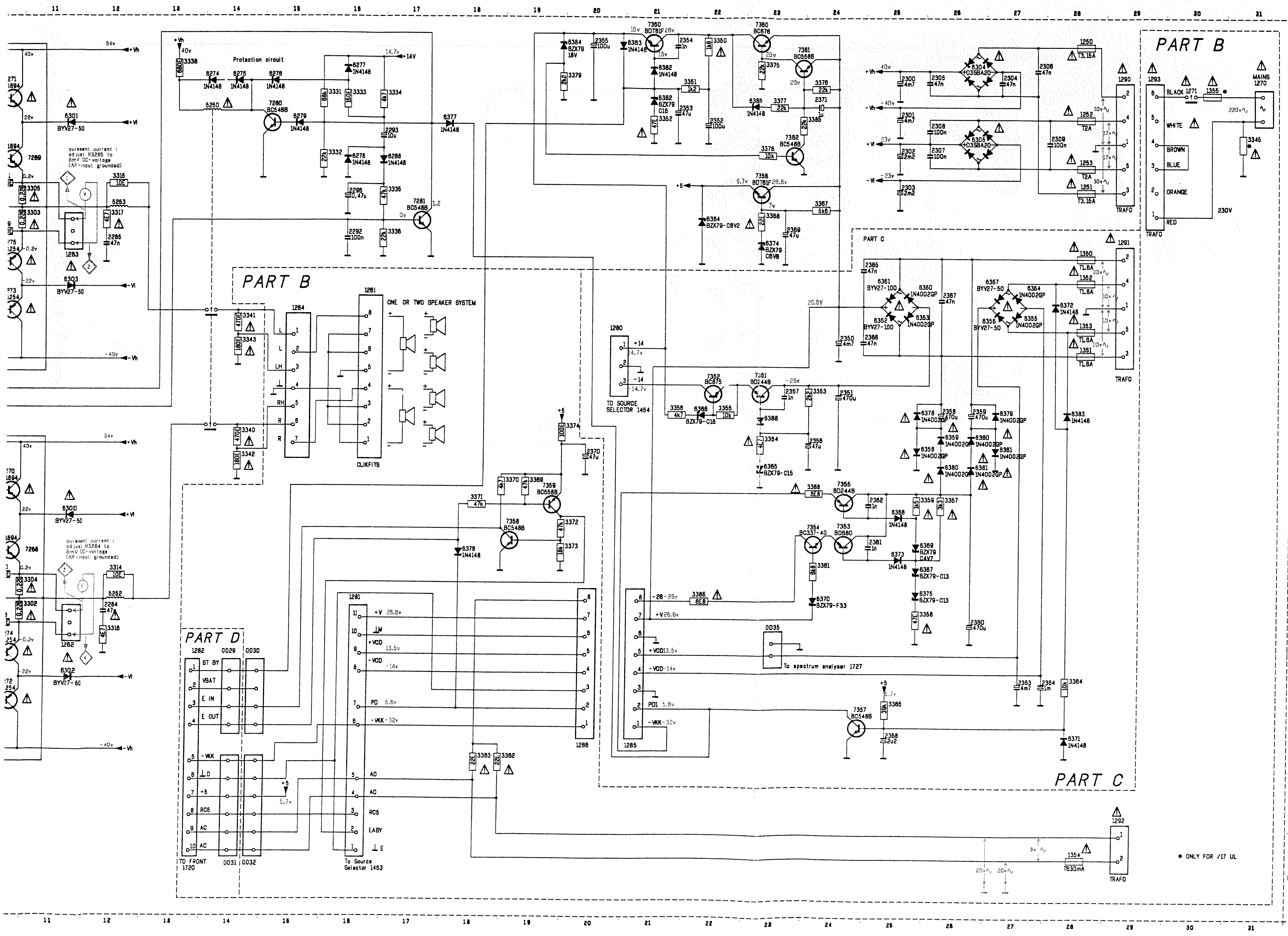
EQUALISER AND VOLUME PART


7801
M5229P
7802
M5229P
7803
ELECTRONIC EQ POTMETERS
EQUALIZER
7804
LC7538
BALANCE
7805
7806
from C2581
Source selector
L1
from C2582
Source selector
R1
TOP VOL L
To C2839
To C2840
TOP VOL R
To plug 1455
L+R
from R3821
+14A
14.5v
from R3822
-14A
-14.5v
from 1452
source selector
DA EQ
CK EQ
VCC
from R3637
5.4v
CK VOL
DA VOL
CE VOL
from 1452
source selector
-14
-14.7v
+14
14.7v
-14.5v
14.5v
-14A
14A
3822
15E
3821
15E
2842
47u
2841
47u
2831
22n
2833
22n
3801
12k
3802
12k
2593
100p
2594
100p
2589
580p
2590
580p
2829
470p
2830
470p
3803
12k
3804
12k
2815
2n7
2817
6n8
2819
18n
2821
39n
2823
100n
2825
270n
2827
680n
2801
1n5
2803
3n3
2805
8n2
2807
22n
2809
56n
2811
150n
2813
330n
3807
3809
3811
3813
3815
3817
3819
470k
2816
2818
2820
2822
2824
2826
2828
2802
2804
2806
2808
2810
2812
2814
3808
3810
3812
3814
3816
3818
3820
2835
2836
2837
2838
4u7
3823
3824
3825
3826
100k
2839
47u
2840
47u
3805
3806
10k
3839
0E
2834
22n
2832
22n
2597
2598
2847
2848
100p
3827
3828
100k
2849
2588
580p
3833
3834
100k
2845
2846
22p
3829
3830
15E
2595
2596
47n
3832
PC.3104-217-00550.EQU.SERV.ES-UNIT
A
B
C
D
E
F
G
H
I
J
K
L
M
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18


ELECTRONIC EQ POTMETERS
7603
EQUALIZER
from R3821 +14A
from 1452 source selector
DA EQ
CK EQ
-14A from R3822
VCC from R3637
TOP VOL L
TOP VOL R
To plug 1455
L+R
7604 LC7538
BALANCE
CK VOL
DA VOL
CE VOL
from 1452 source selector
7605
To TR7677 source selector
VCC
6603 BZX79C5V1
L OUT
R OUT
Output to volume
To spectrum analyser 1790
1455
To spectrum analyser 1723
14.7v
-14.7v
14.6v
-14.6v
5.4v

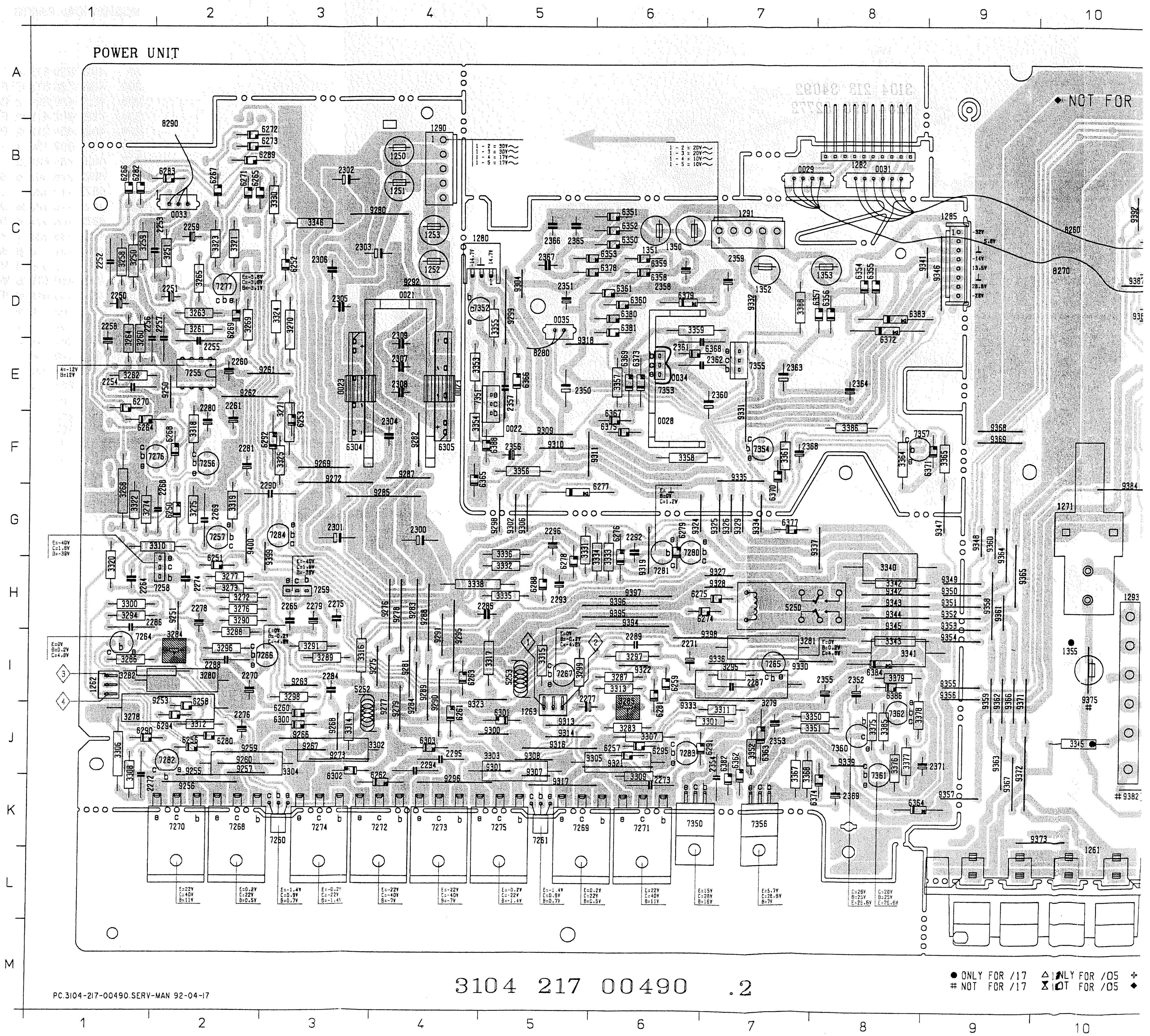
2588	K17
2589	E3
2590	I3
2591	E19
2592	K19
2593	E2
2594	I2
2595	D18
2596	J18
2597	D16
2598	J16
2599	F20
2601	A6
2602	H6
2603	B6
2604	I6
2605	B6
2606	J6
2607	C6
2608	K6
2609	D6
2610	L6
2611	E6
2612	L6
2613	F6
2614	M6
2615	A7
2616	H7
2617	A7
2618	I7
2619	B7
2620	J7
2621	C7
2622	K7
2623	D7
2624	K7
2625	E7
2626	L7
2627	E7
2628	M7
2629	F3
2630	H3
2631	A3
2632	M3
2633	A3
2634	M3
2635	F8
2636	G8
2637	D8
2638	H8
2639	F14
2640	H14
2641	B2
2642	A2
2645	E18
2646	L18
2647	E16
2648	K16
2649	E17
3601	E1
3602	I1
3603	F2
3604	H2
3605	G14
3606	G14
3607	A7
3608	H7
3609	B7
3610	I7
3611	B7
3612	J7
3613	C7
3614	K7
3615	D7
3616	L7
3617	E7
3618	L7
3619	F7
3620	M7
3621	A2
3622	A2
3623	G8
3624	G8
3625	D8
3626	H8
3627	E17
3628	K17
3629	C18
3630	I18
3631	E17
3632	K17
3633	E18
3634	K18
3637	E20
3638	F21
3639	M2
6603	F21
7601	C5
7602	K5
7603	G12
7604	G18
7605	D18
7605	K18

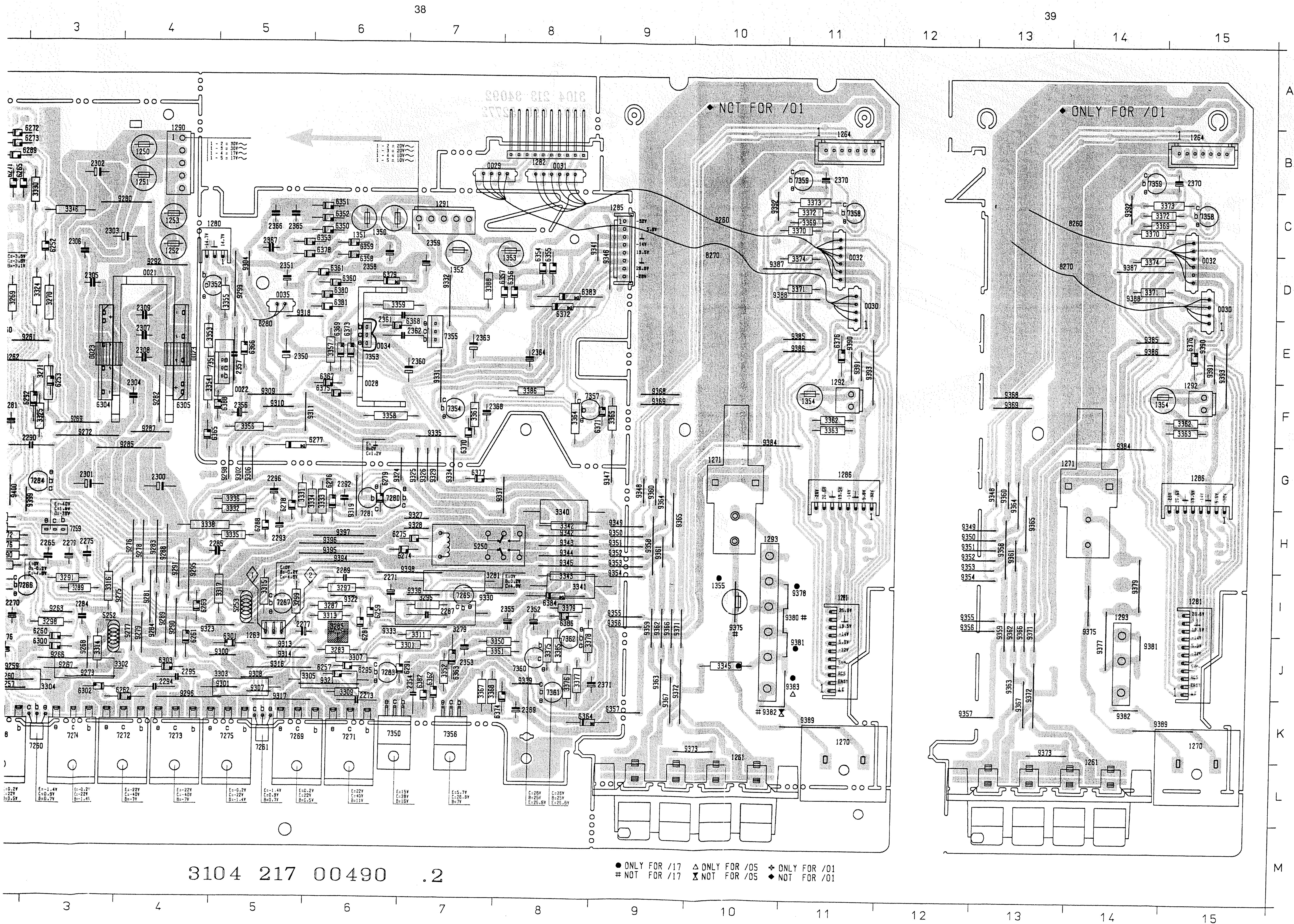

POWER UNIT
PART A
PART B
PART D
0033
from spectrum analyzer 1791
From volume
Short protection circuit
Protection circuit
NJM4560DD
quiescent current : adjust R3285 to 8mV DC-voltage (AF-input grounded)
quiescent current : adjust R3284 to 8mV DC-voltage (AF-input grounded)
ONE OR TWO SPEAKER SYSTEM
CLIKFIT6
1261
1264
1280
TO SOURCE SELECTOR 1454
1281
To Source Selector 1453
1282
TO FRONT 1720
0029
0030
0031
0032
0035
To spectrum analyser
1285
1286
ST BY
VBAT
E IN
E OUT
-VKK
+5
RC5
AC
EASY
PD
PD1
+VCD
-VCD
+V
-V
2SD1894
2SB1254
BC548B
BC558B
BF457
BD781F
BD244B
BC875
BC876
BYV27-50
1N4148
BAV21
BZX79-C10
BZX79-C3V3
ES.3104-217-00490.SERV.ES-UNIT


PART B
PART C
PART D
Protection circuit
ONE OR TWO SPEAKER SYSTEM
CLIKFITS
quiescent current : adjust R3285 to 8mV DC-voltage (AF-input grounded)
quiescent current : adjust R3284 to 8mV DC-voltage (AF-input grounded)
TO SOURCE SELECTOR 1454
To spectrum analyser 1727
TO FRONT 1720
To Source Selector 1453
TRAFO
MAINS 1270
BLACK
WHITE
BROWN
BLUE
ORANGE
RED
230V
220V∿
● ONLY FOR /17 UL
ST BY
VBAT
E IN
E OUT
-VKK
RC5
AC
EASY
+VCD
-VCD
PD
PD1
1250 T3.15A
1251 T3.15A
1252 T2A
1253 T2A
1350 T1.6A
1351 T1.6A
1352 T1.6A
1353 T1.6A
1354 T630mA

1250	A28	3301	C10	6355	E27
1251	C28	3302	J11	6356	E27
1252	B28	3303	C11	6357	D27
1253	B28	3304	I11	6358	G25
1271	A30	3305	C11	6359	G26
1350	D28	3306	G9	6360	D26
1351	F28	3307	A9	6361	D27
1352	D28	3308	G9	6362	A21
1353	E28	3309	A9	6363	A21
1354	N28	3310	H8	6364	C22
1355	A30	3311	A8	6365	G23
2250	I2	3312	I8	6366	G22
2251	B2	3313	B8	6367	I25
2252	I2	3314	I12	6368	H25
2253	C2	3315	C12	6369	I25
2254	I4	3316	J12	6370	J24
2255	C4	3317	C12	6371	L28
2256	I3	3318	I6	6372	E28
2257	C3	3319	C6	6373	I25
2258	L3	3320	K5	6374	D23
2259	F3	3321	D5	6375	J25
2260	H4	3322	K6	6376	I18
2261	B4	3323	D6	6377	B18
2264	K5	3324	H5	6378	G25
2268	I7	3325	B5	6379	G27
2269	C7	3330	F3	6380	G26
2270	G7	3331	A16	6381	G26
2271	A7	3332	B16	6382	A21
2272	H10	3333	A16	6383	G28
2273	A10	3334	A17	6384	A20
2274	K7	3335	C17	6386	A23
2275	D7	3336	D17	6388	D23
2276	J8	3338	A13	7255	C5
2277	C8	3340	G14	7255	J5
2278	L8	3341	E14	7256	I6
2279	E8	3342	G14	7257	C6
2280	I6	3343	E14	7258	K7
2281	B6	3345	B31	7259	E7
2284	J12	3346	A6	7260	I8
2285	D12	3350	A22	7261	C8
2286	I10	3351	A22	7264	I9
2287	C10	3352	B21	7265	C9
2288	J10	3353	F24	7266	J9
2289	C10	3354	D23	7267	C9
2290	G3	3355	G22	7268	I11
2292	D16	3356	G21	7269	B11
2293	B16	3357	H26	7270	H10
2294	L10	3358	J25	7271	A10
2295	E10	3359	H25	7272	K10
2296	C16	3361	I24	7273	E10
2300	A25	3362	L19	7274	J10
2301	B25	3363	L18	7275	D10
2302	B25	3364	K28	7276	J5
2303	C25	3365	K25	7277	D5
2304	A27	3367	C24	7280	B15
2305	A26	3368	C23	7281	C17
2306	A27	3369	H19	7282	D9
2307	B26	3370	H19	7283	A9
2308	B26	3371	H18	7284	A7
2309	B28	3372	H20	7350	A21
2350	E24	3373	I20	7351	F23
2351	F24	3374	G20	7352	F22
2352	B22	3375	A23	7353	H24
2353	B21	3376	A24	7354	H24
2354	A21	3377	A23	7355	H24
2355	A20	3378	B23	7356	C23
2356	G24	3379	A20	7357	L24
2357	F23	3385	B24	7358	H19
2358	G26	3386	J22	7359	H19
2359	G26	3388	H24	7360	A23
2360	J26	5250	B14	7361	A23
2361	I25	5252	J12	7362	B23
2362	H25	5253	C12		
2363	K27	6250	J6		
2364	K27	6251	D6		
2365	D24	6252	H5		
2366	E24	6253	A5		
2367	E26	6256	H10		
2368	L25	6257	B10		
2369	D23	6258	I8		
2370	G20	6259	B8		
2371	A24	6260	K8		
3250	I2	6261	D8		
3251	B2	6262	K8		
3258	I2	6263	E8		
3259	C2	6264	J4		
3260	I3	6265	D3		
3261	B3	6266	L4		
3262	K3	6267	E4		
3263	D3	6268	K4		
3264	L3	6269	D4		
3265	E3	6270	L3		
3268	K5	6271	E3		
3269	E5	6272	F5		
3270	H5	6273	F5		
3271	A5	6274	A14		
3272	L6	6275	A14		
3273	E6	6276	A15		
3274	I6	6277	A16		
3275	C6	6278	B16		
3276	L7	6279	B15		
3277	E7	6280	I8		
3278	G8	6281	B8		
3279	A8	6282	G2		
3280	H8	6283	G2		
3281	A8	6288	B17		
3282	I8	6289	F6		
3283	C8	6290	H9		
3284	J7	6291	A9		
3285	C7	6292	B6		
3286	J8	6294	H9		
3287	D8	6295	B9		
3288	L8	6300	H11		
3289	E8	6301	B11		
3290	L8	6302	K11		
3291	E8	6303	D11		
3294	I9	6304	A26		
3295	C9	6305	B26		
3296	J9	6350	D25		
3297	C9	6351	D25		
3298	J10	6352	E25		
3299	D10	6353	E25		
3300	I10	6354	D27		

0021	D4
0022	F5
0023	E3
0023	E4
0028	F6
0029	B7
0030	D11
0030	D15
0031	B8
0032	D11
0032	D15
0033	C2
0034	E6
0035	D5
1250	B4
1251	C4
1252	D4
1253	C4
1261	L10
1261	L14
1262	I1
1263	J5
1264	B11
1264	B15
1270	K11
1270	K15
1271	G10
1271	G13
1280	C4
1281	I11
1281	I15
1282	B8
1285	C9
1286	G11
1286	G15
1290	B4
1291	C7
1292	F11
1292	F15
1293	H10
1293	I14
1350	C6
1351	C6
1352	D7
1353	D8
1354	F11
1354	F14
1355	I10
2250	D1
2251	D2
2252	C1
2253	C2
2254	E1
2255	E2
2256	D1
2257	D2
2258	D1
2259	C2
2260	E2
2261	E2
2264	H1
2265	H3
2268	G2
2269	G2
2270	I2
2271	I6
2272	K2
2273	K6
2274	H2
2275	H3
2276	J2
2277	I5
2278	H2
2279	H3
2280	F2
2281	F2
2284	I3
2285	H5
2286	H2
2287	I7
2288	I2
2289	I6
2290	G3
2292	G6
2293	H5
2294	J4
2295	J4
2296	G5
2300	G4
2301	G3
2302	B3
2303	C3
2304	F4
2305	D3
2306	C3
2307	E4
2308	E4
2309	E4
2350	E5
2351	D5
2352	I8
2353	J7
2354	J7
2355	I8
2356	F5
2357	E5
2358	D6
2359	C7
2360	E7
2361	E6
2362	E7
2363	E7
2364	E8
2365	C5
2366	C5
2367	C5
2368	F7
2369	K8
2370	B11
2370	B15
2371	J9
3250	C1
3251	C2
3258	C1
3259	C1
3260	D1
3261	D2
3262	E1
3263	D2
3264	D1
3265	D2
3268	G1
3269	D2
3270	D3
3271	E3
3272	H2
3273	H2
3274	G1
3275	G2
3276	H2
3277	H2
3278	J1
3279	J7
3280	I2
3281	I7
3282	I1
3283	J6
3284	I2
3285	J6
3286	I1
3287	I6
3288	I2
3289	I3
3290	H2
3291	I3
3294	H1
3295	I7
3296	I2
3297	I6
3298	I3
3299	I5
3300	H1
3301	J7
3302	J4
3303	J5
3304	K3
3305	J6
3306	J1
3307	J6
3308	J1
3309	K6
3310	G2
3311	J7
3312	J2
3313	I6
3314	J3
3315	I5
3316	I3
3317	I5
3318	F2
3319	G2
3320	H1
3321	C2
3322	G1
3323	C2
3324	D3
3325	F3
3330	C3
3331	G5
3332	H5
3333	G6
3334	G6
3335	H5
3336	H5
3338	H4
3340	H8
3341	I8
3342	H8
3343	I8
3345	J10
3346	C3
3350	J8
3351	J8
3352	J7
3353	E4
3354	F4
3355	D5
3356	F5
3357	E6
3358	F6
3359	D6
3361	F7
3362	F11
3362	F15
3363	F11
3363	F15
3364	F8
3365	F9
3367	J7
3368	J7
3369	C11
3369	C14
3370	C11
3370	C14
3371	D11
3371	D14
3372	C11
3372	C14
3373	C11
3373	C14
3374	D11
3374	D14
3375	J8
3376	J8
3377	J8
3378	J8
3379	I8
3385	J8
3386	F8
3388	D7
5250	H7
5252	I3
5253	I5
6250	G2
6251	H2
6252	C3
6253	F3
6256	J2
6257	J6
6258	J2
6259	I6
6260	J3
6261	J4
6262	K4
6263	I4
6264	F1
6265	B2
6266	B1
6267	B2
6268	F2
6269	D2
6270	E1
6271	B2
6272	B3
6273	B3
6274	H7
6275	H6
6276	G6
6277	G6
6278	H5
6279	G6
6280	J2
6281	J6
6282	B1
6283	B2
6288	H5
6289	B3
6290	J1
6291	J7
6292	F2
6294	J2
6295	J6
6300	J3
6301	J5
6302	K3
6303	J4
6304	F3
6305	F4
6350	C6
6351	C6
6352	C6
6353	C6
6354	D8
6355	D8
6356	D8
6357	D7
6358	D6
6359	D6
6360	D6
6361	D6
6362	J7
6363	J7
6364	K8
6365	F4
6366	E5
6367	F6
6368	E7
6369	E6
6370	G7
6371	F9
6372	E8
6373	E6
6374	K8
6375	F6
6376	E11
6376	E15
6377	G7
6378	D6
6379	D6
6380	D6
6381	D6
6382	J7
6383	D8
6384	I8
6386	I8
6388	F5
7255	E2
7256	F2
7257	G2
7258	H2
7259	H3
7260	K3
7261	K5
7264	I1
7265	I7
7266	I3
7267	I5
7268	K2
7269	K5
7270	K2
7271	K6
7272	K4
7273	K4
7274	K3
7275	K5
7276	F2
7277	D2
7280	G6
7281	H6
7282	J2
7283	J6
7284	G3
7350	K6
7351	E4
7352	D4
7353	E6
7354	F7
7355	E7
7356	K7
7357	F8
7358	C11
7358	C15
7359	B11
7359	B14
7360	J8
7361	K8
7362	J8
8260	C10
8260	C14
8270	D10
8270	D13
8280	E5
8290	B2
9250	E2
9251	H2
9253	J2
9255	J2
9256	K2
9257	J2
9259	J2
9260	J2
9261	E3
9262	E2
9263	I3
9266	J3
9267	J3
9268	J3
9269	F3
9272	F3
9273	J3
9275	I4
9276	H4
9277	J4
9278	H4
9279	J4
9280	C4
9281	I4
9282	F4
9283	H4
9284	J4
9285	G4
9287	F4
9288	H4
9289	I4
9290	J4
9291	I4
9292	D4
9295	I4
9296	K4
9298	G5
9299	D5
9300	J5
9301	J5
9302	G5
9304	D5
9306	G5
9307	J5
9308	J5
9309	F5
9310	F5
9311	F6
9313	J5
9314	J5
9316	J5
9317	K5
9318	E5
9319	H6
9321	J6
9322	I6
9323	J4
9324	G6
9325	G7
9326	G7
9327	H7
9328	H7
9329	G7
9330	I7
9331	E7
9332	D7
9333	J6
9334	G7
9335	F7
9336	I7
9337	G8
9339	J8
9341	C8
9342	H8
9343	H8
9344	H8
9345	H8
9346	D9
9347	G9
9348	G13
9348	G9
9349	H12
9349	H9
9350	H12
9350	H9
9351	H12
9351	H9
9352	H12
9352	H9
9353	H12
9353	H9
9354	I12
9354	I9
9355	I12
9355	I9
9356	I12
9356	I9
9357	K12
9357	K9
9358	H13
9358	H9
9359	I13
9359	I9
9360	G13
9360	G9
9361	H13
9361	H9
9362	I13
9362	I9
9363	J13
9363	J9
9364	G13
9364	G9
9365	H13
9365	H9
9366	I13
9366	I9
9367	K13
9367	K9
9368	F13
9368	F9
9369	F13
9369	F9
9371	I13
9371	I9
9372	J13
9372	J9
9373	K10
9373	K13
9375	I10
9375	I14
9377	J14
9378	I11
9379	I14
9380	I11
9381	J11
9381	J14
9382	K10
9382	K14
9383	J11
9384	G10
9384	G14
9385	E11
9385	E14
9386	E11
9386	E14
9387	D10
9387	D14
9388	D10
9388	D14
9389	K11
9389	K15
9390	E11
9390	E15
9391	E11
9391	E15
9392	C10
9392	C14
9393	E11
9393	E15
9394	H6
9395	H6
9396	H6
9397	H6
9398	I7
9399	G3
9400	G2

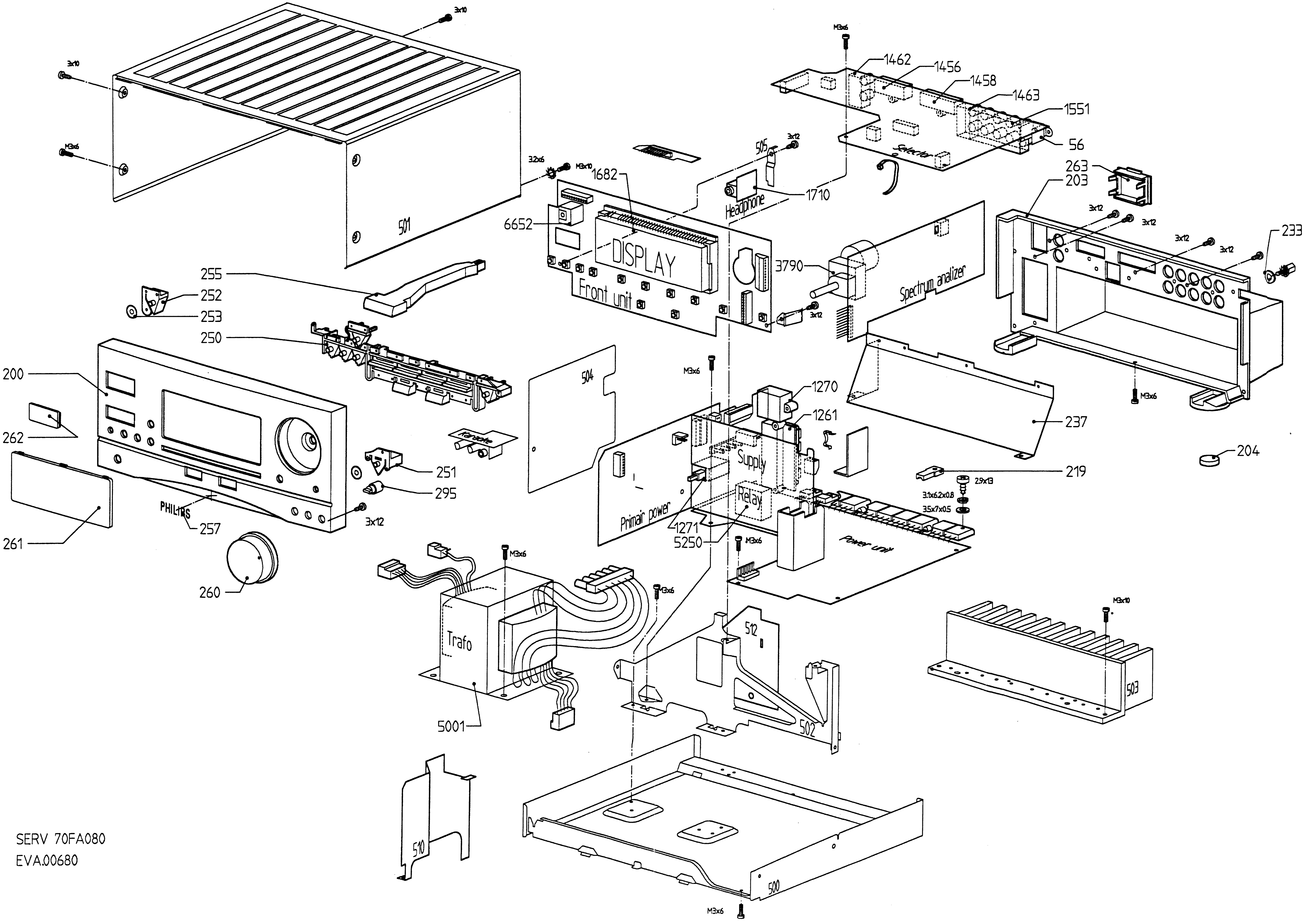



38
39
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
K
L
M
◆ NOT FOR /01
◆ ONLY FOR /01
1264
1285
1286
1281
1293
1292
1271
1270
1261
1290
1291
1280
1282
0029
0031
0032
0030
0021
0022
0023
0028
0034
0035
8260
8270
8280
7260
7274
7272
7273
7275
7261
7269
7271
7350
7356
7359
7358
7354
7357
7360
7361
7362
7265
7266
7267
7280
7281
7283
7284
7352
7353
7355
5250
5252
5253

3104 217 00490 .2

● ONLY FOR /17 △ ONLY FOR /05 ✣ ONLY FOR /01
NOT FOR /17 ⧗ NOT FOR /05 ◆ NOT FOR /01

PCS 57 646


3x10
3x10
M3x6
501
3.2x6
M3x10
1682
6652
DISPLAY
Front unit
505
3x12
Headphone
1710
M3x6
1462
1456
1458
1463
1551
56
Selector
263
203
3x12
3x12
3x12
3x12
233
3790
Spectrum analizer
3x12
255
252
253
250
200
262
261
Karaoke
251
295
3x12
PHILIPS
257
260
504
M3x6
1270
1261
Supply
Relay
Primair power
1271
5250
Power unit
237
M3x6
204
219
2.9x13
3.1x6.2x0.8
3.5x7x0.5
M3x6
M3x6
M3x6
Trafo
5001
512
502
M3x10
503
510
500
M3x6

SERV 70FA080
EVA.00680

MECHANICAL PARTS

56	4822 290 81515	TERMINAL PLATE
200	4822 426 51547	FRONT ASSY
203	4822 426 20212	BACKSIDE ASSY
204	4822 462 41933	FELT FOOT
219	4822 404 21242	PRESS BRACKET FOR TR.
233	4822 502 13921	PHONE SCREW
237	4822 466 62233	INSOLAT.PLATE
250	4822 276 50356	SEL.BUTTON ASSY
251	4822 410 62027	DBB BUTTON
252	4822 410 62026	DSP BUTTON
253	4822 466 93146	DBB DSP PLATE
255	4822 535 93321	POWER ROD
257	4822 459 11078	WORDMARK
260	4822 413 51415	VOLUME KNOP ASSY
261	4822 450 61908	WINDOW ASSY
262	4822 450 61909	IR WINDOW
263	4822 462 71849	TERMINAL
1261	4822 290 61102	PUCH TERMINAL 4X2P
1270	4822 267 31445	MAINS
1271	4822 276 13277	POWER SWITCH
1456	4822 267 60332	CONNECTOR BMT 13P
1458	4822 267 60331	CONNECTOR BMT 19P
1462	4822 267 31503	PIN JACK 2F.
1463	4822 267 31504	PIN JACK 2F.
1551	4822 267 51159	PIN JACK 8F.
1682	4822 130 91134	DISPLAY
1710	4822 267 31514	PHONE JACK
3790	4822 102 10414	VOLUME ASSY
5001	4822 146 31123	MAINS TRAFO
5001	4822 146 31132	MAINS TRAFO /01
5001	4822 146 31133	MAINS TRAFO /14
5250	4822 280 70368	RELAY
6652	4822 130 81254	IR EYE
	4822 736 21427	I.F.U FW80
	4822 218 10467	REMOTE CONTROL RH6622/01
	4822 158 60624	LEAD ASSY

MISCELLANEOUS

1250	4822 071 53152	FUSE 3.15A
1250	4822 253 10126	FUSE 4A /17
1251	4822 071 53152	FUSE 3.15A
1251	4822 253 10126	FUSE 4A /17
1252	4822 253 50137	FUSE T 2,5A /17
1253	4822 253 50137	FUSE T 2,5A /17
1261	4822 290 61102	PUCH TERMINAL 4X2P
1270	4822 267 31383	MAINS SOCKET
1270	4822 267 31445	MAINS SOCKET /17
1271	4822 276 13277	MAINS SWITCH
1350	4822 071 51602	FUSE 1.6A
1350	4822 253 10128	FUSE 2A
1351	4822 071 51602	FUSE 1.6A
1351	4822 253 10128	FUSE 2A
1352	4822 071 51602	FUSE 1.6A
1352	4822 253 10128	FUSE 2A
1353	4822 071 51602	FUSE 1.6A
1353	4822 253 10128	FUSE 2A
1354	4822 071 56301	FUSE 630MA
1354	4822 252 51152	FUSE 0,8A
1355	4822 253 10126	FUSE 4A
1456	4822 267 60332	CONNECTOR BMT 13P
1458	4822 267 60331	CONNECTOR BMT 19P
1462	4822 267 31503	SOCKET 2F.
1463	4822 267 31504	SOCKET 2F.
1551	4822 267 51159	SOCKET 8F.
1666	4822 276 13114	TACT SWITCH
1667	4822 276 13114	TACT SWITCH
1668	4822 276 13114	TACT SWITCH
1669	4822 276 13114	TACT SWITCH
1670	4822 276 13114	TACT SWITCH
1671	4822 276 13114	TACT SWITCH
1672	4822 276 13114	TACT SWITCH
1673	4822 276 13114	TACT SWITCH
1674	4822 276 13114	TACT SWITCH
1675	4822 276 13114	TACT SWITCH
1676	4822 276 13114	TACT SWITCH
1677	4822 276 13114	TACT SWITCH
1678	4822 276 13114	TACT SWITCH
1682	4822 130 91134	DISPLAY
1710	4822 267 31514	PHONE JACK

CAPACITORS

2250	4822 124 40242	1µF 20% 63V
2251	4822 124 40242	1µF 20% 63V
2252	4822 122 10183	100pF 5% 50V
2253	4822 122 10183	100pF 5% 50V
2254	4822 122 10183	100pF 5% 50V
2255	4822 122 10183	100pF 5% 50V
2256	4822 122 31435	470pF 10% 50V
2257	4822 122 31435	470pF 10% 50V
2258	4822 124 40196	220µF 20% 16V
2259	4822 124 40196	220µF 20% 16V
2260	4822 124 41643	100µF 20% 16V
2261	4822 124 41643	100µF 20% 16V
2264	4822 126 11307	180pF 10% 500V
2265	4822 126 11307	180pF 10% 500V
2268	4822 122 10173	820pF 10% 50V
2269	4822 122 10173	820pF 10% 50V
2270	5322 124 21189	100µF 20% 40V
2271	5322 124 21189	100µF 20% 40V
2272	5322 122 10237	150pF 10%
2273	5322 122 10237	150pF 10%
2274	4822 126 11308	47pF 5% 500V
2275	4822 126 11308	47pF 5% 500V
2276	4822 124 41584	100µF 20% 10V
2277	4822 124 41584	100µF 20% 10V
2278	4822 124 41596	22µF 20% 50V
2279	4822 124 41596	22µF 20% 50V
2280	4822 124 40242	1µF 20% 63V
2281	4822 124 40242	1µF 20% 63V
2284	4822 121 43526	47nF 5% 100V
2285	4822 121 43526	47nF 5% 100V
2286	4822 122 10176	4,7nF 10% 50V
2287	4822 122 10176	4,7nF 10% 50V
2288	4822 122 10176	4,7nF 10% 50V
2289	4822 122 10176	4,7nF 10% 50V
2290	4822 122 10166	22nF 30% 16V
2292	5322 121 42386	100nF 5% 63V
2293	4822 124 40435	10µF 20% 50V
2294	5322 122 10237	150pF 10%
2295	5322 122 10237	150pF 10%
2296	4822 124 40239	0,47µF 20% 63V
2300	4822 124 42128	4700µF 20% 63V
2301	4822 124 42128	4700µF 20% 63V
2302	4822 124 42393	2000µF 50V
2303	4822 124 42393	2000µF 50V
2304	4822 121 43875	47nF 5% 250V
2305	4822 121 43875	47nF 5% 250V
2306	4822 121 43875	47nF 5% 250V
2307	4822 121 42007	100nF 10% 100V
2308	4822 121 42007	100nF 10% 100V
2309	4822 121 42007	100nF 10% 100V
2350	4822 124 42121	4700µF 35V
2351	4822 124 41334	470µF 20% 35V
2352	5322 124 21189	100µF 20% 40V
2353	4822 124 40433	47µF 20% 25V
2354	4822 122 10158	1nF 10% 50V
2355	4822 124 41525	100µF 20% 25V
2356	4822 124 40433	47µF 20% 25V
2357	4822 122 10158	1nF 10% 50V
2358	4822 124 41334	470µF 20% 35V

2359	4822 124 41334	470µF 20% 35V
2360	4822 124 80194	100µF 20% 100V
2361	4822 122 10158	1nF 10% 50V
2362	4822 122 10158	1nF 10% 50V
2363	4822 124 42119	4700µF 20% 25V
2364	4822 124 42118	1000µF 20% 25V
2365	4822 121 43526	47nF 5% 100V
2366	4822 121 43526	47nF 5% 100V
2367	4822 121 43526	47nF 5% 100V
2368	4822 124 40244	2,2µF 20% 63V
2369	4822 124 40177	47µF 20% 10V
2370	4822 124 40177	47µF 20% 10V
2371	4822 124 40242	1µF 20% 63V
2451	5322 122 32531	100pF 5% 50V
2452	5322 122 32531	100pF 5% 50V
2453	4822 124 40242	1µF 20% 63V
2454	4822 124 40242	1µF 20% 63V
2455	5322 122 32531	100pF 5% 50V
2456	5322 122 32531	100pF 5% 50V
2457	5322 116 80853	560pF 5% 63V
2458	5322 116 80853	560pF 5% 63V
2459	4822 124 40435	10µF 20% 50V
2460	4822 124 40435	10µF 20% 50V
2461	4822 122 33177	10nF 20% 50V
2462	4822 122 33177	10nF 20% 50V
2463	5322 126 10223	4,7nF 10% 63V
2464	5322 126 10223	4,7nF 10% 63V
2465	4822 124 40435	10µF 20% 50V
2466	4822 124 40435	10µF 20% 50V
2467	4822 124 40433	47µF 20% 25V
2468	4822 124 40433	47µF 20% 25V
2469	5322 122 32654	22nF 10% 63V
2470	5322 122 32654	22nF 10% 63V
2471	4822 124 40242	1µF 20% 63V
2472	4822 124 40242	1µF 20% 63V
2473	5322 122 31946	27pF 10% 50V
2474	5322 122 31946	27pF 10% 50V
2475	5322 116 80853	560pF 5% 63V
2476	5322 116 80853	560pF 5% 63V
2477	4822 124 40433	47µF 20% 25V
2478	4822 124 40433	47µF 20% 25V
2479	4822 124 40433	47µF 20% 25V
2480	4822 124 40433	47µF 20% 25V
2481	5322 122 32654	22nF 10% 63V
2482	5322 122 32654	22nF 10% 63V
2483	4822 124 40433	47µF 20% 25V
2484	4822 124 40433	47µF 20% 25V
2485	5322 122 32654	22nF 10% 63V
2486	5322 122 32654	22nF 10% 63V
2487	4822 122 33342	33nF 10% 63V
2527	4822 122 33342	33nF 10% 63V
2528	5322 122 31866	6,8nF 10% 63V
2529	5322 122 32654	22nF 10% 63V
2530	4822 122 33515	82pF 5% 63V
2531	5322 122 32838	82nF 10% 63V
2532	4822 124 41584	100µF 20% 10V
2533	4822 124 40849	330µF 20% 16V
2534	4822 122 32542	47nF 10% 63V
2535	4822 124 40435	10µF 20% 50V
2536	4822 122 33496	100nF 10% 63V
2537	4822 122 32927	220nF
2538	4822 122 32542	47nF 10% 63V
2539	5322 122 32531	100pF 5% 50V
2540	5322 122 32531	100pF 5% 50V
2541	5322 122 32654	22nF 10% 63V
2542	5322 122 32654	22nF 10% 63V
2543	4822 124 41584	100µF 20% 10V
2544	4822 124 41584	100µF 20% 10V
2545	5322 126 10465	3,9nF 10% 63V
2546	5322 126 10465	3,9nF 10% 63V
2547	4822 122 33893	18nF 10% 63V
2548	4822 122 33893	18nF 10% 63V
2549	4822 124 40435	10µF 20% 50V
2550	4822 124 40435	10µF 20% 50V
2551	4822 122 33175	2,2nF 20% 50V
2553	5322 122 32661	56pF 5% 50V
2554	5322 122 32661	56pF 5% 50V
2555	5322 122 32661	56pF 5% 50V
2556	5322 122 32452	47pF 5% 63V
2574	4822 124 40435	10µF 20% 50V
2575	5322 122 32531	100pF 5% 50V
2576	5322 122 32531	100pF 5% 50V
2577	5322 116 80853	560pF 5% 63V
2578	5322 116 80853	560pF 5% 63V
2579	5322 126 10223	4,7nF 10% 63V
2580	5322 126 10223	4,7nF 10% 63V
2581	4822 124 40435	10µF 20% 50V
2582	4822 124 40435	10µF 20% 50V
2585	4822 122 33342	33nF 10% 63V
2586	4822 122 33496	100nF 10% 63V
2587	4822 124 40242	1µF 20% 63V
2588	5322 116 80853	560pF 5% 63V
2589	5322 116 80853	560pF 5% 63V
2590	5322 116 80853	560pF 5% 63V
2591	4822 124 40246	4,7µF 20% 63V
2592	4822 124 40246	4,7µF 20% 63V
2593	5322 122 32531	100pF 5% 50V
2594	5322 122 32531	100pF 5% 50V
2595	4822 122 32542	47nF 10% 63V
2596	4822 122 32542	47nF 10% 63V
2597	4822 124 40246	4,7µF 20% 63V
2598	4822 124 40246	4,7µF 20% 63V
2599	4822 124 40433	47µF 20% 25V
2601	5322 122 31865	1,5nF 10% 63V
2602	5322 122 31865	1,5nF 10% 63V
2603	4822 122 33891	3,3nF 10% 63V
2604	4822 122 33891	3,3nF 10% 63V
2605	4822 122 33336	8,2nF 10% 50V

2606	4822 122 33336	8,2nF 10% 50V
2607	5322 122 32654	22nF 10% 63V
2608	5322 122 32654	22nF 10% 63V
2609	4822 122 33105	56nF 10% 63V
2610	4822 122 33105	56nF 10% 63V
2611	4822 126 11691	150nF
2612	4822 126 11691	150nF
2613	5322 121 42661	330nF 5% 63V
2614	5322 121 42661	330nF 5% 63V
2615	5322 126 10223	4,7nF 10% 63V
2616	5322 126 10223	4,7nF 10% 63V
2617	5322 122 31866	6,8nF 10% 63V
2618	5322 122 31866	6,8nF 10% 63V
2619	4822 122 33893	18nF 10% 63V
2620	4822 122 33893	18nF 10% 63V
2621	4822 122 33608	39nF 10% 63V
2622	4822 122 33608	39nF 10% 63V
2623	4822 122 33496	100nF 10% 63V
2624	4822 122 33496	100nF 10% 63V
2625	4822 121 41738	270nF 5% 63V
2626	4822 121 41738	270nF 5% 63V
2627	5322 121 42498	680nF 5% 63V
2628	5322 121 42498	680nF 5% 63V
2629	5322 122 34099	470pF 10% 63V
2630	5322 122 34099	470pF 10% 63V
2631	4822 122 31797	22nF 10% 63V
2632	4822 122 31797	22nF 10% 63V
2633	4822 122 31797	22nF 10% 63V
2634	4822 122 31797	22nF 10% 63V
2635	4822 124 40246	4,7µF 20% 63V
2636	4822 124 40246	4,7µF 20% 63V
2637	4822 124 40246	4,7µF 20% 63V
2638	4822 124 40246	4,7µF 20% 63V
2639	4822 124 40433	47µF 20% 25V
2640	4822 124 40433	47µF 20% 25V
2641	4822 124 40433	47µF 20% 25V
2642	4822 124 40433	47µF 20% 25V
2645	5322 122 32658	22pF 5% 50V
2646	5322 122 32658	22pF 5% 50V
2647	5322 122 32531	100pF 5% 50V
2648	5322 122 32531	100pF 5% 50V
2649	5322 116 80853	560pF 5% 63V
2650	4822 121 51252	470nF 5% 63V
2651	4822 124 23178	47µF 20% 16V
2652	4822 126 11585	22nF
2653	4822 121 42408	220nF 5% 63V
2654	4822 121 51387	10nF 20% 16V
2655	4822 126 11585	22nF
2656	4822 124 80195	470µF 20% 10V
2658	5322 121 42386	100nF 5% 63V
2673	4822 121 51252	470nF 5% 63V
2674	4822 121 51252	470nF 5% 63V
2679	5322 121 42386	100nF 5% 63V
2685	4822 122 10459	560pF 10% 50V

2761	4822 122 10459	560pF 10% 50V
2765	4822 124 41525	100µF 20% 25V
2766	4822 124 40246	4,7µF 20% 63V
2767	4822 124 40246	4,7µF 20% 63V
2768	4822 124 40435	10µF 20% 50V
2769	4822 124 40435	10µF 20% 50V
2770	4822 124 40435	10µF 20% 50V
2785	4822 124 41525	100µF 20% 25V
2787	4822 124 40435	10µF 20% 50V
2788	4822 124 41525	100µF 20% 25V
2789	4822 124 41525	100µF 20% 25V
2790	5322 121 42661	330nF 5% 63V
2791	4822 121 51387	10nF 20% 16V
2792	4822 121 51387	10nF 20% 16V
2795	4822 121 51356	180nF 10% 63V
2796	4822 121 51356	180nF 10% 63V
2797	4822 124 40435	10µF 20% 50V

RESISTORS

3250	4822 050 21002	1k 1% 0,6W
3251	4822 050 21002	1k 1% 0,6W
3258	4822 050 22203	22k 1% 0,6W
3259	4822 050 22203	22k 1% 0,6W
3260	4822 050 21002	1k 1% 0,6W
3261	4822 050 21002	1k 1% 0,6W
3262	4822 116 52224	470Ω 5% 0,5W
3263	4822 116 52224	470Ω 5% 0,5W
3264	4822 116 52217	270Ω 5% 0,5W
3265	4822 116 52217	270Ω 5% 0,5W
3268	4822 050 22203	22k 1% 0,6W
3269	4822 050 22203	22k 1% 0,6W
3270	4822 053 10182	1k8 5% 1W
3271	4822 053 10182	1k8 5% 1W
3272	4822 050 26801	680Ω 1% 0,6W
3273	4822 050 26801	680Ω 1% 0,6W
3274	4822 050 22202	2k2 1% 0,6W
3275	4822 050 22202	2k2 1% 0,6W
3276	4822 050 16809	68Ω 1% 0,4W
3277	4822 050 16809	68Ω 1% 0,4W
3278	4822 112 41112	1k5 5% 5,8W
3279	4822 112 41112	1k5 5% 5,8W
3280	4822 053 10152	1k5 5% 1W
3281	4822 053 10152	1k5 5% 1W
3282	4822 116 52263	2k7 5% 0,5W
3283	4822 116 52263	2k7 5% 0,5W
3284	4822 100 11677	470Ω 30%LIN 02W
3285	4822 100 11677	470Ω 30%LIN 02W
3286	4822 051 10561	560Ω 2% 0,25W
3287	4822 051 10561	560Ω 2% 0,25W
3288	4822 050 23002	3k 1% 0,6W
3289	4822 050 23002	3k 1% 0,6W
3290	4822 053 10222	2k2 5% 1W

3291	4822 053 10222	2k2 5% 1W
3294	4822 050 21801	180Ω 1% 0,6W
3295	4822 050 21801	180Ω 1% 0,6W
3296	4822 050 21801	180Ω 1% 0,6W
3297	4822 050 21801	180Ω 1% 0,6W
3298	4822 116 52224	470Ω 5% 0,5W
3299	4822 116 52224	470Ω 5% 0,5W
3300	4822 116 52224	470Ω 5% 0,5W
3301	4822 116 52224	470Ω 5% 0,5W
3302	4822 113 80598	0Ω22 5% 3W
3303	4822 113 80598	0Ω22 5% 3W
3304	4822 113 80598	0Ω22 5% 3W
3305	4822 113 80598	0Ω22 5% 3W
3306	4822 050 22203	22k 1% 0,6W
3307	4822 050 22203	22k 1% 0,6W
3308	4822 050 24702	4k7 1% 0,6W
3309	4822 050 24702	4k7 1% 0,6W
3310	4822 050 22202	2k2 1% 0,6W
3311	4822 050 22202	2k2 1% 0,6W
3312	4822 052 10279	27Ω 5% 0,33W
3313	4822 052 10279	27Ω 5% 0,33W
3314	4822 052 10109	10Ω 5% 0,33W
3315	4822 052 10109	10Ω 5% 0,33W
3316	4822 052 10478	4Ω7 5% 0,33W
3317	4822 052 10478	4Ω7 5% 0,33W
3318	4822 050 21002	1k 1% 0,6W
3319	4822 050 21002	1k 1% 0,6W
3320	4822 116 52234	100k 5% 0,5W
3321	4822 116 52234	100k 5% 0,5W
3322	4822 050 22203	22k 1% 0,6W
3323	4822 050 22203	22k 1% 0,6W
3324	4822 051 10101	100Ω 2% 0,25W
3325	4822 051 10101	100Ω 2% 0,25W
3330	4822 116 52234	100k 5% 0,5W
3331	4822 050 26803	68k 1% 0,6W
3332	4822 050 22203	22k 1% 0,6W
3333	4822 050 21501	150Ω 1% 0,6W
3334	4822 050 24702	4k7 1% 0,6W
3335	4822 050 24703	47k 1% 0,6W
3336	4822 050 22203	22k 1% 0,6W
3338	4822 050 26801	680Ω 1% 0,6W
3340	4822 113 80597	470Ω 10% 5W
3341	4822 113 80597	470Ω 10% 5W
3342	4822 050 21801	180Ω 1% 0,6W
3343	4822 050 21801	180Ω 1% 0,6W
3345	4822 053 21106	10M 5% 0,5W
3346	4822 050 22203	22k 1% 0,6W
3350	4822 050 21802	1k8 1% 0,6W
3351	4822 050 21202	1k2 1% 0,6W
3352	4822 052 10479	47Ω 5% 0,33W
3353	4822 050 22202	2k2 1% 0,6W
3354	4822 052 10478	4Ω7 5% 0,33W
3355	4822 050 21003	10k 1% 0,6W
3356	4822 050 24702	4k7 1% 0,6W
3357	4822 050 23302	3k3 1% 0,6W
3358	4822 052 10479	47Ω 5% 0,33W
3359	4822 050 21502	1k5 1% 0,6W
3361	4822 050 26802	6k8 1% 0,6W
3362	4822 053 10229	22Ω 5% 1W
3363	4822 053 10229	22Ω 5% 1W
3364	4822 050 21003	10k 1% 0,6W
3365	4822 050 23903	39k 1% 0,6W
3367	4822 050 25602	5k6 1% 0,6W
3368	4822 052 10229	22Ω 5% 0,33W
3369	4822 050 24703	47k 1% 0,6W
3370	4822 050 24702	4k7 1% 0,6W
3371	4822 050 24703	47k 1% 0,6W
3372	4822 050 24703	47k 1% 0,6W
3373	4822 050 21803	18k 1% 0,6W
3374	4822 051 10101	100Ω 2% 0,25W
3375	4822 050 22203	22k 1% 0,6W
3376	4822 050 22203	22k 1% 0,6W
3377	4822 050 22203	22k 1% 0,6W
3378	4822 050 21003	10k 1% 0,6W
3379	4822 050 22202	2k2 1% 0,6W
3385	4822 050 22203	22k 1% 0,6W
3386	4822 052 10688	6Ω8 5% 0,33W
3388	4822 052 10688	6Ω8 5% 0,33W
3451	4822 050 23901	390Ω 1% 0,6W
3452	4822 050 23901	390Ω 1% 0,6W
3453	4822 050 13304	330k 1% 0,4W
3454	4822 050 13304	330k 1% 0,4W
3457	4822 050 23901	390Ω 1% 0,6W
3458	4822 050 23901	390Ω 1% 0,6W
3459	4822 050 21001	100Ω 1% 0,6W
3460	4822 050 21001	100Ω 1% 0,6W
3461	4822 050 25601	560Ω 1% 0,6W
3462	4822 050 25601	560Ω 1% 0,6W
3463	4822 050 13304	330k 1% 0,4W
3464	4822 050 13304	330k 1% 0,4W
3465	4822 050 12703	27k 1% 0,4W
3466	4822 050 12703	27k 1% 0,4W
3467	4822 116 52306	9k1 5% 0,5W
3468	4822 116 52306	9k1 5% 0,5W
3469	4822 116 52247	16k 5% 0,5W
3470	4822 116 52247	16k 5% 0,5W
3471	4822 116 52217	270Ω 5% 0,5W
3472	4822 116 52217	270Ω 5% 0,5W
3473	4822 050 22203	22k 1% 0,6W
3474	4822 050 22203	22k 1% 0,6W
3475	4822 050 22003	20k 1% 0,6W
3476	4822 050 22003	20k 1% 0,6W
3477	4822 051 20223	22k 5% 0,1W
3478	4822 050 22203	22k 1% 0,6W
3479	4822 051 20562	5k6 5% 0,1W
3480	4822 051 20562	5k6 5% 0,1W
3481	4822 116 52256	2k2 5% 0,5W
3482	4822 116 52256	2k2 5% 0,5W

3483	4822 116 52257	22k	5%	0,5W
3484	4822 116 52257	22k	5%	0,5W
3485	4822 116 52257	22k	5%	0,5W
3486	4822 116 52257	22k	5%	0,5W
3487	4822 050 21003	10k	1%	0,6W
3488	4822 050 21003	10k	1%	0,6W
3489	4822 050 21003	10k	1%	0,6W
3490	4822 050 21003	10k	1%	0,6W
3491	4822 116 52233	10k	5%	0,5W
3492	4822 116 52233	10k	5%	0,5W
3493	4822 050 21203	12k	1%	0,6W
3494	4822 050 21203	12k	1%	0,6W
3495	4822 116 52256	2k2	5%	0,5W
3496	4822 116 52256	2k2	5%	0,5W
3497	4822 116 52217	270Ω	5%	0,5W
3498	4822 116 52217	270Ω	5%	0,5W
3499	4822 116 52269	3k3	5%	0,5W
3500	4822 050 24701	470Ω	1%	0,6W
3501	4822 051 20223	22k	5%	0,1W
3502	4822 051 20223	22k	5%	0,1W
3503	4822 051 20104	100k	5%	0,1W
3504	4822 051 20104	100k	5%	0,1W
3505	4822 051 20683	68k	5%	0,1W
3506	4822 050 26803	68k	1%	0,6W
3507	4822 051 20561	560Ω	5%	0,1W
3508	4822 050 25601	560Ω	1%	0,6W
3509	4822 051 20104	100k	5%	0,1W
3510	4822 111 50521	100k	5%	
3511	4822 116 52217	270Ω	5%	0,5W
3512	4822 116 52217	270Ω	5%	0,5W
3525	4822 116 52244	15k	5%	0,5W
3526	4822 116 52244	15k	5%	0,5W
3528	4822 050 24702	4k7	1%	0,6W
3530	4822 050 24702	4k7	1%	0,6W
3531	4822 116 52296	6k8	5%	0,5W
3532	4822 111 50521	100k	5%	
3533	4822 050 12703	27k	1%	0,4W
3534	4822 116 82976	82k	5%	1/6W
3535	4822 116 52256	2k2	5%	0,5W
3536	4822 051 20471	470Ω	5%	0,1W
3537	4822 116 52217	270Ω	5%	0,5W
3538	4822 116 52243	1k5	5%	0,5W
3539	4822 116 52213	180Ω	5%	0,5W
3540	4822 051 20562	5k6	5%	0,1W
3541	4822 116 52257	22k	5%	0,5W
3542	4822 116 52257	22k	5%	0,5W
3543	4822 116 52233	10k	5%	0,5W
3544	4822 116 52233	10k	5%	0,5W
3545	4822 116 52263	2k7	5%	0,5W
3546	4822 050 22702	2k7	1%	0,6W
3549	4822 116 52233	10k	5%	0,5W
3550	4822 116 52233	10k	5%	0,5W
3553	4822 116 52256	2k2	5%	0,5W
3554	4822 116 52256	2k2	5%	0,5W
3555	4822 116 52283	4k7	5%	0,5W
3556	4822 116 52283	4k7	5%	0,5W
3557	4822 116 52283	4k7	5%	0,5W
3558	4822 116 52283	4k7	5%	0,5W
3559	4822 051 20332	3k3	5%	0,1W
3560	4822 051 20332	3k3	5%	0,1W
3561	4822 050 23902	3k9	1%	0,6W
3562	4822 050 23902	3k9	1%	0,6W
3563	4822 116 52263	2k7	5%	0,5W
3564	4822 116 52263	2k7	5%	0,5W
3565	4822 051 10102	1k	2%	0,25W
3566	4822 051 10102	1k	2%	0,25W
3567	4822 051 10102	1k	2%	0,25W
3568	4822 051 20101	100Ω	5%	0,1W
3569	4822 051 20008	0Ω	5%	0,1W
3570	4822 051 20109	10Ω	5%	0,1W
3575	4822 051 10102	1k	2%	0,25W
3576	4822 051 10102	1k	2%	0,25W
3577	4822 051 20103	10k	5%	0,1W
3578	4822 051 20103	10k	5%	0,1W
3579	4822 116 52217	270Ω	5%	0,5W
3580	4822 116 52217	270Ω	5%	0,5W
3581	4822 050 21003	10k	1%	0,6W
3582	4822 051 10106	10M	5%	0,25W
3583	4822 051 20104	100k	5%	0,1W
3584	4822 051 20473	47k	5%	0,1W
3601	4822 116 52238	12k	5%	0,5W
3602	4822 116 52238	12k	5%	0,5W
3603	4822 051 20123	12k	5%	0,1W
3604	4822 051 20123	12k	5%	0,1W
3605	4822 050 21003	10k	1%	0,6W
3606	4822 051 20103	10k	5%	0,1W
3607	4822 051 20474	470k	5%	0,1W
3608	4822 051 20474	470k	5%	0,1W
3609	4822 051 20474	470k	5%	0,1W
3610	4822 051 20474	470k	5%	0,1W
3611	4822 051 20474	470k	5%	0,1W
3612	4822 051 20474	470k	5%	0,1W
3613	4822 051 20474	470k	5%	0,1W
3614	4822 051 20474	470k	5%	0,1W
3615	4822 051 20474	470k	5%	0,1W
3616	4822 051 20474	470k	5%	0,1W
3617	4822 051 20474	470k	5%	0,1W
3618	4822 051 20474	470k	5%	0,1W
3619	4822 051 20474	470k	5%	0,1W
3620	4822 051 20474	470k	5%	0,1W
3621	4822 052 10159	15Ω	5%	0,33W
3622	4822 052 10159	15Ω	5%	0,33W
3623	4822 051 20104	100k	5%	0,1W
3624	4822 051 20104	100k	5%	0,1W
3625	4822 051 20104	100k	5%	0,1W
3626	4822 051 20104	100k	5%	0,1W
3627	4822 051 20104	100k	5%	0,1W
3628	4822 051 20104	100k	5%	0,1W

3629	4822 052 10159	15Ω	5%	0,33W
3630	4822 052 10159	15Ω	5%	0,33W
3631	4822 051 20104	100k	5%	0,1W
3632	4822 051 20104	100k	5%	0,1W
3633	4822 051 20104	100k	5%	0,1W
3634	4822 051 20104	100k	5%	0,1W
3638	4822 051 20109	10Ω	5%	0,1W
3639	4822 051 20008	0Ω	5%	0,1W
3650	4822 116 52233	10k	5%	0,5W
3651	4822 116 52234	100k	5%	0,5W
3653	4822 052 10478	4Ω7	5%	0,33W
3654	4822 116 52284	47k	5%	0,5W
3655	4822 116 52284	47k	5%	0,5W
3656	4822 116 52284	47k	5%	0,5W
3657	4822 116 52251	18k	5%	0,5W
3658	4822 116 52283	4k7	5%	0,5W
3659	4822 116 52233	10k	5%	0,5W
3660	4822 116 52219	330Ω	5%	0,5W
3661	4822 116 52233	10k	5%	0,5W
3666	4822 050 11002	1k	1%	0,4W
3667	4822 050 11002	1k	1%	0,4W
3669	4822 050 11002	1k	1%	0,4W
3671	4822 116 52256	2k2	5%	0,5W
3673	4822 116 52233	10k	5%	0,5W
3674	4822 116 52296	6k8	5%	0,5W
3675	4822 116 52224	470Ω	5%	0,5W
3676	4822 050 16802	6k8	1%	0,4W
3677	4822 116 52224	470Ω	5%	0,5W
3680	4822 050 24702	4k7	1%	0,6W
3682	4822 050 11002	1k	1%	0,4W
3683	4822 050 11002	1k	1%	0,4W
3684	4822 050 11002	1k	1%	0,4W
3685	4822 050 11002	1k	1%	0,4W
3690	4822 116 52233	10k	5%	0,5W
3691	4822 116 52304	82k	5%	0,5W
3692	4822 116 52233	10k	5%	0,5W
3693	4822 116 52304	82k	5%	0,5W
3694	4822 116 52233	10k	5%	0,5W
3695	4822 116 52304	82k	5%	0,5W
3696	4822 116 52233	10k	5%	0,5W
3697	4822 116 52304	82k	5%	0,5W
3700	4822 052 10188	1Ω8	5%	0,33W
3701	4822 052 10188	1Ω8	5%	0,33W
3705	4822 116 52297	68k	5%	0,5W
3706	4822 116 52297	68k	5%	0,5W
3707	4822 116 52297	68k	5%	0,5W
3708	4822 116 52297	68k	5%	0,5W
3712	4822 050 24702	4k7	1%	0,6W
3713	4822 050 24702	4k7	1%	0,6W
3714	4822 116 52283	4k7	5%	0,5W
3718	4822 050 16802	6k8	1%	0,4W
3719	4822 050 11002	1k	1%	0,4W
3720	4822 050 21002	1k	1%	0,6W
3721	4822 050 11002	1k	1%	0,4W
3722	4822 050 21002	1k	1%	0,6W
3723	4822 050 21002	1k	1%	0,6W
3724	4822 050 21002	1k	1%	0,6W
3725	4822 050 21002	1k	1%	0,6W
3726	4822 050 24702	4k7	1%	0,6W
3727	4822 050 11002	1k	1%	0,4W
3736	4822 116 52283	4k7	5%	0,5W
3737	4822 116 52283	4k7	5%	0,5W
3738	4822 116 52283	4k7	5%	0,5W
3739	4822 050 21002	1k	1%	0,6W
3740	4822 050 11002	1k	1%	0,4W
3741	4822 050 11002	1k	1%	0,4W
3742	4822 050 21002	1k	1%	0,6W
3743	4822 050 21002	1k	1%	0,6W
3745	4822 116 52283	4k7	5%	0,5W
3746	4822 116 52233	10k	5%	0,5W
3747	4822 116 52243	1k5	5%	0,5W
3764	4822 050 22201	220Ω	1%	0,6W
3765	4822 050 23902	3k9	1%	0,6W
3766	4822 116 52233	10k	5%	0,5W
3767	4822 116 52195	47Ω	5%	0,5W
3768	4822 116 52257	22k	5%	0,5W
3769	4822 116 52233	10k	5%	0,5W
3770	4822 116 52233	10k	5%	0,5W
3771	4822 116 52233	10k	5%	0,5W
3772	4822 116 52244	15k	5%	0,5W
3773	4822 116 52258	220k	5%	0,5W
3774	4822 116 52233	10k	5%	0,5W
3775	4822 116 52258	220k	5%	0,5W
3776	4822 116 52264	27k	5%	0,5W
3777	4822 116 52264	27k	5%	0,5W
3778	4822 116 52269	3k3	5%	0,5W
3779	4822 116 52238	12k	5%	0,5W
3780	4822 050 23301	330Ω	1%	0,6W
3781	4822 050 23301	330Ω	1%	0,6W
3785	4822 050 23901	390Ω	1%	0,6W
3786	4822 116 52239	120k	5%	0,5W
3787	4822 050 22201	220Ω	1%	0,6W
3788	4822 116 52233	10k	5%	0,5W
3789	4822 052 10228	2Ω2	5%	0,33W
3790	4822 102 10414	20kX2	20%	0,05W
3791	4822 116 52243	1k5	5%	0,5W
3792	4822 116 52243	1k5	5%	0,5W
3793	4822 050 11002	1k	1%	0,4W
3794	4822 050 11002	1k	1%	0,4W
3795	4822 052 10109	10Ω	5%	0,33W
3796	4822 116 52283	4k7	5%	0,5W
3797	4822 116 52233	10k	5%	0,5W
3798	4822 116 52284	47k	5%	0,5W
3799	4822 116 52234	100k	5%	0,5W

COILS

5001	4822 146 31123	MAINS TRAFO
5001	4822 146 31132	MAINS TRAFO /01
5001	4822 146 31133	MAINS TRAFO /14
5250	4822 280 70368	RELAY
5252	4822 157 62255	COIL 18,5 TURNS
5253	4822 157 62255	COIL 18,5 TURNS
5525	4822 242 81019	CST3,58MHz W-TF01
5526	4822 157 62552	COIL 2,2µh
5650	5322 242 73697	CST8,00MTW-TF01
5652	4822 157 60147	COIL 2,2µH

DIODES

6001	4822 130 83077	LED VOLUME KNOB
6250	4822 130 61219	BZX79-C10
6251	4822 130 61219	BZX79-C10
6252	4822 130 61219	BZX79-C10
6253	4822 130 61219	BZX79-C10
6256	4822 130 30842	BAV21
6257	4822 130 30842	BAV21
6258	4822 130 80235	BZX79-C3V3
6259	4822 130 80235	BZX79-C3V3
6260	4822 130 80235	BZX79-C3V3
6261	4822 130 80235	BZX79-C3V3
6262	4822 130 30842	BAV21
6263	4822 130 30842	BAV21
6264	4822 130 30621	1N4148
6265	4822 130 30621	1N4148
6266	4822 130 30621	1N4148
6267	4822 130 30621	1N4148
6268	4822 130 30621	1N4148
6269	4822 130 30621	1N4148
6270	4822 130 30621	1N4148
6271	4822 130 30621	1N4148
6272	4822 130 30621	1N4148
6273	4822 130 30621	1N4148
6274	4822 130 30621	1N4148
6275	4822 130 30621	1N4148
6276	4822 130 30621	1N4148
6277	4822 130 30621	1N4148
6278	4822 130 30621	1N4148
6280	4822 130 30621	1N4148
6281	4822 130 30621	1N4148
6282	4822 130 30621	1N4148
6283	4822 130 30621	1N4148
6288	4822 130 30621	1N4148
6289	4822 130 30621	1N4148
6290	4822 130 30621	1N4148
6291	4822 130 30621	1N4148
6292	4822 130 61219	BZX79-C10
6294	4822 130 30842	BAV21
6295	4822 130 30842	BAV21
6300	5322 130 32184	BYV27-50
6301	5322 130 32184	BYV27-50
6302	5322 130 32184	BYV27-50
6303	5322 130 32184	BYV27-50
6304	4822 130 82079	D3SBA20
6305	4822 130 82079	D3SBA20
6350	5322 130 30684	1N4002GP
6351	4822 130 31982	BYV27-100
6352	4822 130 31982	BYV27-100
6353	5322 130 30684	1N4002GP
6354	5322 130 30684	1N4002GP
6355	5322 130 30684	1N4002GP
6356	5322 130 32184	BYV27-50
6357	5322 130 32184	BYV27-50
6358	5322 130 30684	1N4002GP
6359	5322 130 30684	1N4002GP
6360	5322 130 30684	1N4002GP
6361	5322 130 30684	1N4002GP
6362	4822 130 34268	BZX79-C16
6363	4822 130 30621	1N4148
6364	4822 130 34382	BZX79-C8V2
6365	4822 130 34281	BZX79-C15
6366	4822 130 31024	BZX79-C18
6367	4822 130 34195	BZX79-C13
6368	4822 130 30621	1N4148
6369	4822 130 34174	BZX79-C4V7
6370	4822 130 34142	BZX79-F33
6371	4822 130 30621	1N4148
6372	4822 130 30621	1N4148
6373	4822 130 30621	1N4148
6374	4822 130 34278	BZX79-C6V8
6375	4822 130 34195	BZX79-C13
6376	4822 130 30621	1N4148
6377	4822 130 30621	1N4148
6378	5322 130 30684	1N4002GP
6379	5322 130 30684	1N4002GP
6380	5322 130 30684	1N4002GP
6381	5322 130 30684	1N4002GP
6382	4822 130 30621	1N4148
6383	4822 130 30621	1N4148
6384	4822 130 31024	BZX79-C18
6386	4822 130 30621	1N4148
6388	4822 130 30621	1N4148
6525	4822 130 34173	BZX79-C5V6
6526	4822 130 30621	1N4148
6575	4822 130 30621	1N4148
6603	4822 130 34233	BZX79-C5V1
6652	4822 130 81254	GP1U520X
6653	4822 130 81007	LT3P82A
6654	4822 130 81007	LT3P82A
6656	4822 130 30621	1N4148

6664	4822 130 30621	1N4148
6665	4822 130 30621	1N4148
6666	4822 130 30621	1N4148
6667	4822 130 30621	1N4148
6780	4822 130 34233	BZX79-C5V1
6781	4822 130 34233	BZX79-C5V1
6782	4822 130 34233	BZX79-C5V1
6783	4822 130 30621	1N4148
6790	4822 130 30621	1N4148

TRANSISTORS & IC's

7255	4822 209 70157	NJM4560DD
7256	4822 130 41691	BC556B
7257	4822 130 41691	BC556B
7258	5322 130 44413	BF459
7259	5322 130 44413	BF459
7260	4822 130 40937	BC548B
7261	4822 130 40937	BC548B
7264	4822 130 40937	BC548B
7265	4822 130 40937	BC548B
7266	4822 130 44197	BC558B
7267	4822 130 44197	BC558B
7268	4822 130 63074	2SD1894
7269	4822 130 63074	2SD1894
7270	4822 130 63074	2SD1894
7271	4822 130 63074	2SD1894
7272	4822 130 63073	2SB1254
7273	4822 130 63073	2SB1254
7274	4822 130 63073	2SB1254
7275	4822 130 63073	2SB1254
7276	4822 130 40937	BC548B
7277	4822 130 40937	BC548B
7280	4822 130 44461	BC546B
7281	4822 130 40937	BC548B
7282	4822 130 40937	BC548B
7283	4822 130 40937	BC548B
7284	4822 130 44461	BC546B
7350	4822 130 62952	BDT61F
7351	4822 130 60542	BD244B
7352	5322 130 61677	BC875
7353	5322 130 60206	BD680
7354	4822 130 41344	BC337-40
7355	4822 130 60542	BD244B
7356	4822 130 62952	BDT61F
7357	4822 130 40937	BC548B
7358	4822 130 40937	BC548B
7359	4822 130 44197	BC558B
7360	5322 130 42505	BC876
7361	4822 130 44197	BC558B
7362	4822 130 40937	BC548B
7451	4822 209 70157	NJM4560DD
7452	4822 209 72748	LC7821
7453	4822 209 70157	NJM4560DD
7525	5322 130 42136	BC848C
7526	5322 130 41982	BC848B
7527	5322 130 41982	BC848B
7528	5322 130 41982	BC848B
7529	5322 130 42136	BC848C
7530	5322 130 42136	BC848C
7531	4822 209 30562	YM3428
7532	5322 130 41982	BC848B
7575	4822 209 70157	NJM4560DD
7576	4822 130 41024	BF245B
7577	5322 130 41983	BC858B
7601	4822 209 71301	M5229P
7602	4822 209 71301	M5229P
7603	4822 209 30372	LC7520
7604	4822 209 31501	IC LC7536
7605	4822 209 70157	NJM4560DD
7650	4822 130 40937	BC548B
7654	4822 130 44197	BC558B
7655	4822 130 40937	BC548B
7656	4822 130 40937	BC548B
7663	4822 130 40937	BC548B
7664	4822 130 40937	BC548B
7665	4822 130 40937	BC548B
7666	4822 130 40937	BC548B
7671	4822 130 40937	BC548B
7672	4822 130 40937	BC548B
7673	4822 130 40937	BC548B
7674	4822 130 40937	BC548B
7683	4822 209 31499	CMOS 8-BIT
7684	4822 209 62098	ST24C02CP
7690	5322 130 44779	BC338-40
7691	5322 130 44779	BC338-40
7692	4822 130 40937	BC548B
7785	4822 209 31502	BA3826S
7786	4822 209 63667	BA6229
7787	4822 209 83274	NJM4560D
7788	4822 130 40948	BC548A
7789	4822 130 40937	BC548B

70FA080

A93-456

Product Service Group CE Audio

Service Information

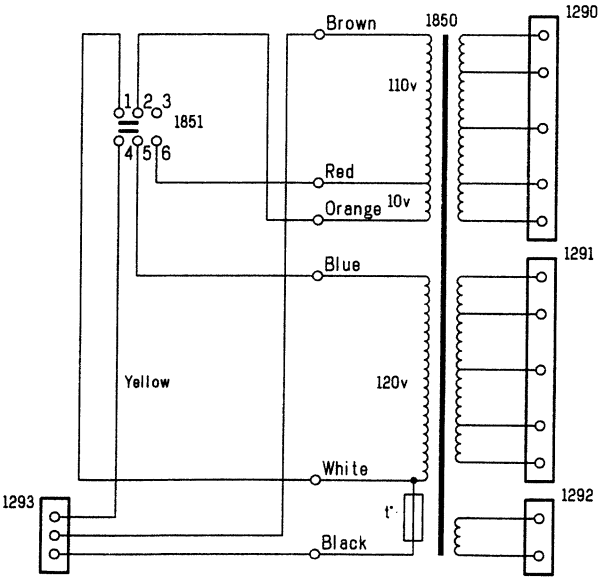
70FA080 only /01/01X/13 versions

The electrical diagram of the trafo version with voltage selector is missing in the service manual of 70FA080.

Reason: The trafo obtainable from service is all electrical with voltage selector connected.

Here with you find the electrical diagram from the trafo for versions /01/01X/13

TRAFO ASSY


Brown
1850
1290
110v
1
2
3
1851
4
5
6
Red
Orange
10v
Blue
1291
Yellow
120v
White
1293
1292
t°
Black

1993-06-16

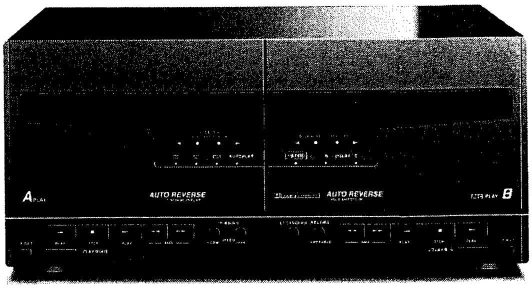
4822 725 23962

PCS 69 255

Double Cassette Deck FC 080

/00 /17

Service
Service
Service



Service Manual

Table of contents

Specification 2
Controls & Connections 3
Safety instructions 4
Service hints 4
Dismantling hints 5-6
Service Testprogram 7-8
Wiring diagram 9-10

Interface board

Component layout 11-12
Circuit diagram 13-15

RE-Module

Component layout 16-18
Recorder digital part 19-21
Adjustment table 22-24
Recorder analog part 25-27
RE-Deck electronic 28

Front board

Circuit diagram 29-30
Component layout 31-32

Exploded view Tape Transport 33-34
Partslist of Tape Transports 34
Dismantling hints Tape Transports ... 35-36
Exploded view of set 37-38
Electrical partslist .... 39 ff

"Pour votre sécurite, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne".

Published by Consumer Electronics Printed in The Netherlands Copyright reserved Subject to modification

4822 725 23744

PHILIPS

CS 51 570

Specification

General:

Mains voltage : no internal mains transformer

Power consumption : 16W in dubbing
: 2W in stand by

Ext. Supply (from FA080) : +14V unstab.

Recorder part:

Tape speed : 4,76 cm/s ±2% in **N**ormal **S**peed
: 9,5 cm/s ±2% in **H**igh **S**peed
Wow & Flutter : ≤0,3%
Winding speed : 130 s ±15 s for C60 cassette
Noise reduction system : Dolby B (**N**oise **R**eduction factor: 8,5 dB typ.)
: Dolby C (**N**oise **R**eduction factor: 17 dB typ.)

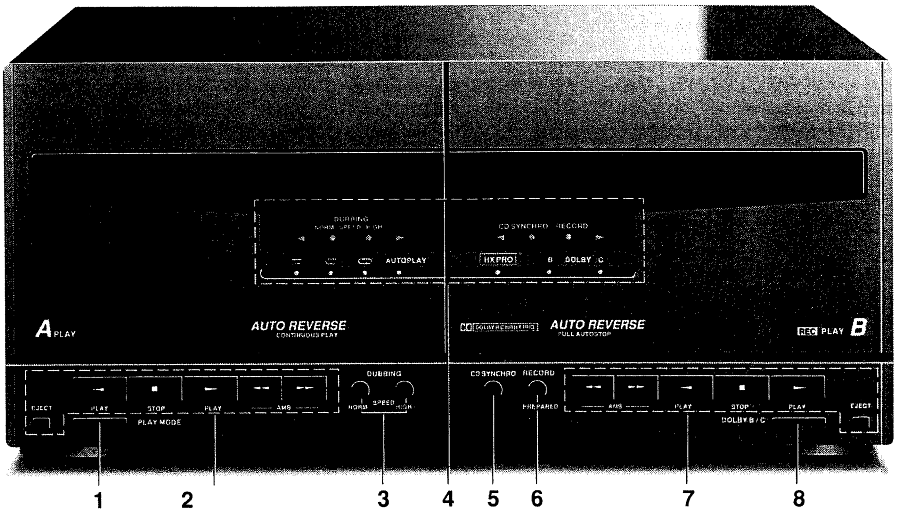
Erase / Bias system : AC 80 kHz with HX-PRO
RIF-shift : service solution on request (see page 4)
Distortion at 220 nWb/m : ≤ 3%
Channel difference at PB : ≤ 2 dB
Channel difference overall : ≤ 2 dB
Channel separation : ≥ 22 dB at 1 kHz
Track separation : ≥ 59 dB at 1 kHz
ALC attack time : ≤ 300 ms
ALC recovery time : typ. 130 s

	IEC I	IEC II	Dubbing NS	Dubbing HS
Frequency response -5 dB 1)	100 Hz - 12,5 kHz	100 Hz - 12,5 kHz	100 Hz - 12,5 kHz	100 Hz - 12,5 kHz
Signal to Noise ratio 2)	≥ 43 dB	≥ 46 dB	≥ 43 dB / ≥ 46 dB	≥ 43 dB / ≥ 46 dB
Signal to Hum ratio 2)	≥ 51 dB	≥ 53 dB	≥ 51 dB / ≥ 53 dB	≥ 51 dB / ≥ 53 dB
Erase attenuation	≥ 60 dB	≥ 60 dB	≥ 60 dB	≥ 60 dB

1) typical value

2) at 250 nWb/m

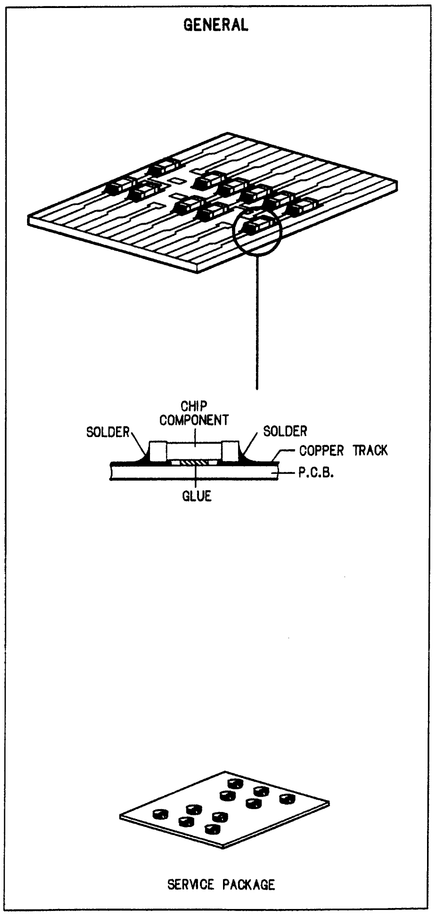
Controls & Connections

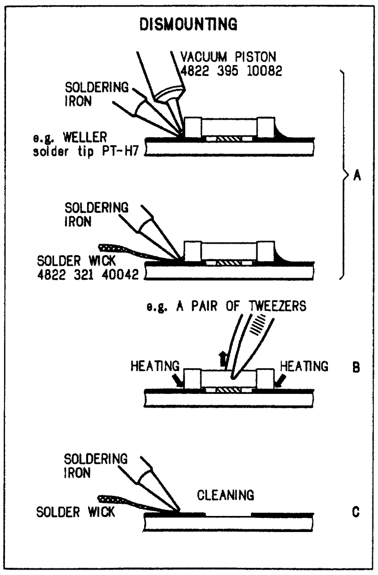

A PLAY
AUTO REVERSE
AUTO REVERSE
REC PLAY B
AUTOPLAY
HX PRO
DOLBY
EJECT
PLAY
STOP
PLAY MODE
DUBBING
CD SYNCHRO
RECORD
DOLBY B/C
1
2
3
4
5
6
7
8

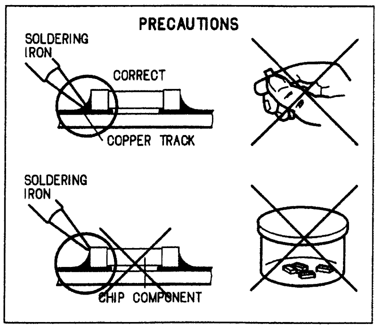
No.	Name	Pos.No.	Service Code
1	Play mode	1909	4822 276 13114
2	Play ◁	1901	4822 276 13114
	Stop □	1910	4822 276 13114
	Play ▷	1903	4822 276 13114
	Wind left ◁◁	1902	4822 276 13114
	Wind right ▷▷	1904	4822 276 13114
3	Dubbing Normal speed	1912	4822 276 13114
	Dubbing High speed	1911	4822 276 13114
4	Control LEDs	green	4822 130 83057
		red	4822 130 83056

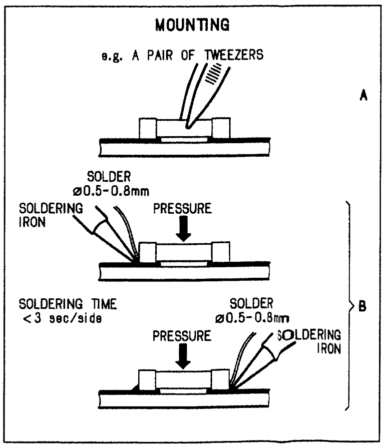
No.	Name	Pos.No.	Service Code
5	CD Synchro	1916	4822 276 13114
6	Record	1914	4822 276 13114
7	Wind left ◁◁	1906	4822 276 13114
	Wind right ▷▷	1908	4822 276 13114
	Play ◁	1905	4822 276 13114
	Stop □	1913	4822 276 13114
	Play ▷	1907	4822 276 13114
9	Dolby B/C	1915	4822 276 13114

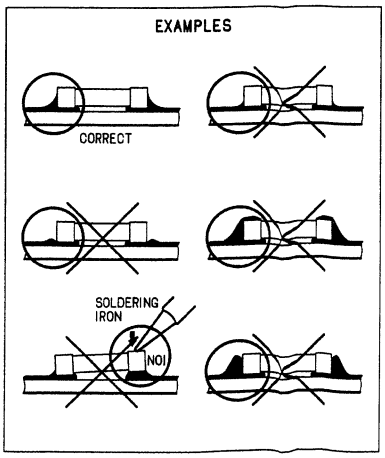
Handling Chip Components


GENERAL
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE


DISMOUNTING
VACUUM PISTON
4822 395 10082
SOLDERING IRON
e.g. WELLER
solder tip PT-H7
A
SOLDERING IRON
SOLDER WICK
4822 321 40042
e.g. A PAIR OF TWEEZERS
HEATING
HEATING
B
SOLDERING IRON
CLEANING
SOLDER WICK
C


PRECAUTIONS
SOLDERING IRON
CORRECT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT


MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER
ø0.5-0.8mm
SOLDERING IRON
PRESSURE
SOLDERING TIME
<3 sec/side
SOLDER
ø0.5-0.8mm
PRESSURE
SOLDERING IRON
B


EXAMPLES
CORRECT
SOLDERING IRON
NO!

Safety Instructions

(GB) WARNING
All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools at this potential.

(F) ATTENTION
Tous les IC et beaucoup d´autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévite pourrait être considérablement écourtée par le fait qu´aucune précaution nést prise à leur manipulation.
Lors de réparations, s´assurer de bien être relié au même potentiel que la masse de l´appareil et enfileer le bracelet serti d´une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l´on utilise soient également à ce potentiel.

ESD

(D) WARNUNG
Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.
Sorgen Sie dafür, daß sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(NL) WAARSCHUWING
Alle IC´s en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen vermindern. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal

(I) AVVERTIMENTO
Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparationi occorre quindi essere collegato allo stesso potenziale che quello della massa delàpparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Originalersatzteile zu verwenden.

(I)
Le norme di sicurezza estigono che l´apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.

(F)
Les normes de sécurité exigent que l´appareil soit remis à l´état d´origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

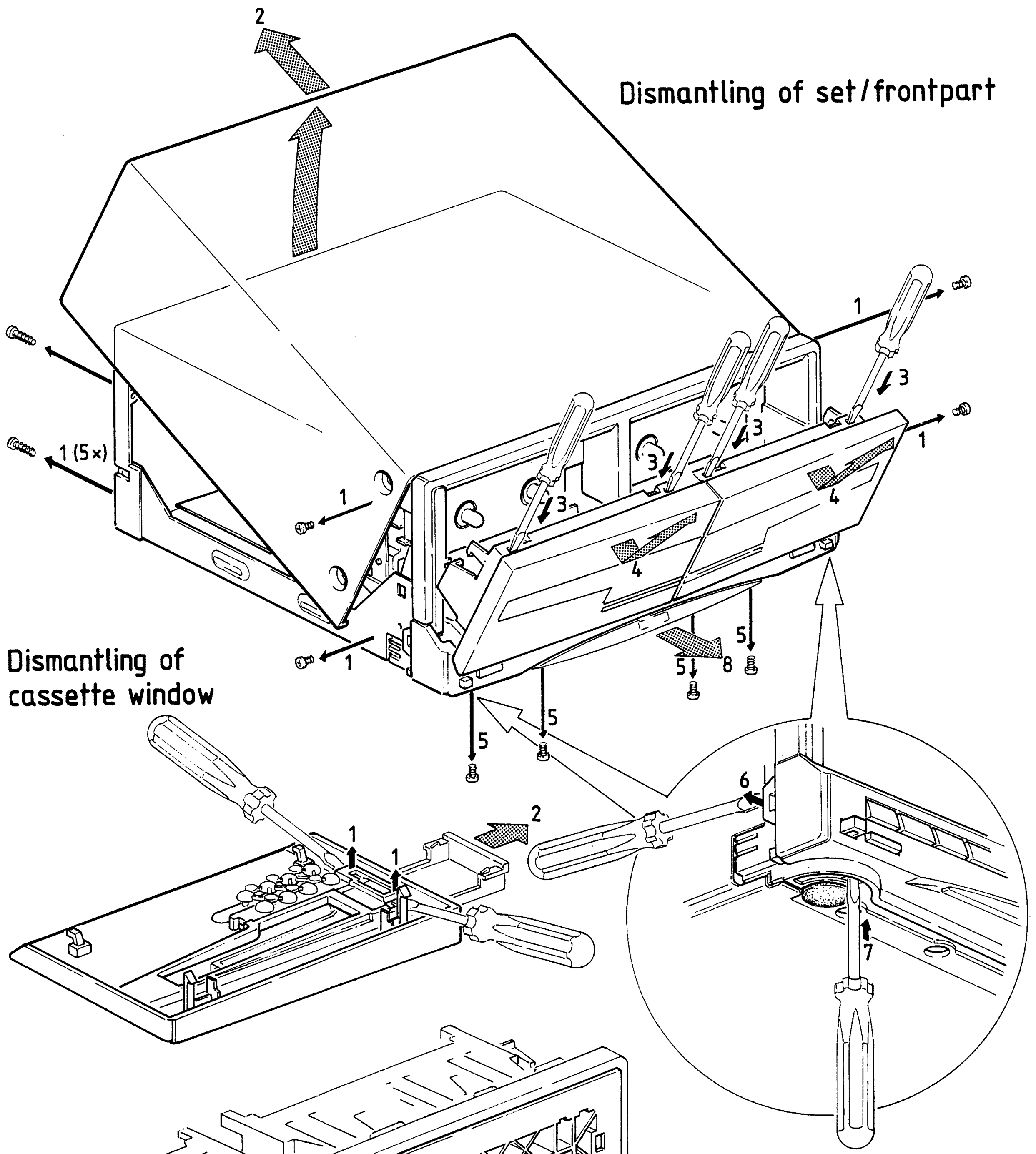
Service Hints

The FC080 has no internal power supply. Therefore it´s necessary to connect the set to a FA080.
If no FA080 is available it´s possible to connect +14V to pin 10 and pin 11 of connector 1401. Ground is pin 9. In this case some values of the specification (e.g. Signal to noise ratio) are not guaranteed.
Of course check of easy link functions only possible with FA080.

Service solution for RIF

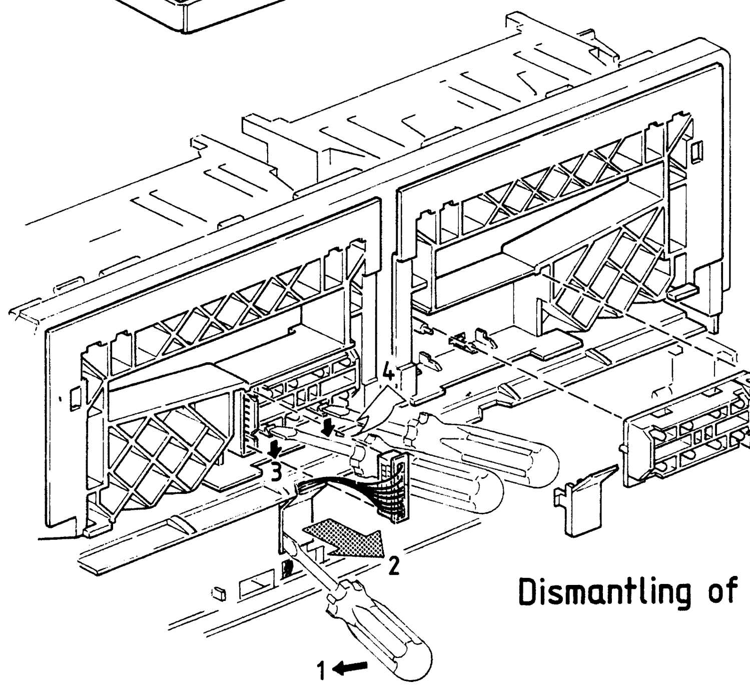
1.) Disadjust frequency of erase oscillator with L5625 to about 87 kHz.
2.) Change C2631, 2632 to 220pF (if necessary to 270pF).
3.) Readjust bias.

Dismantling Hints

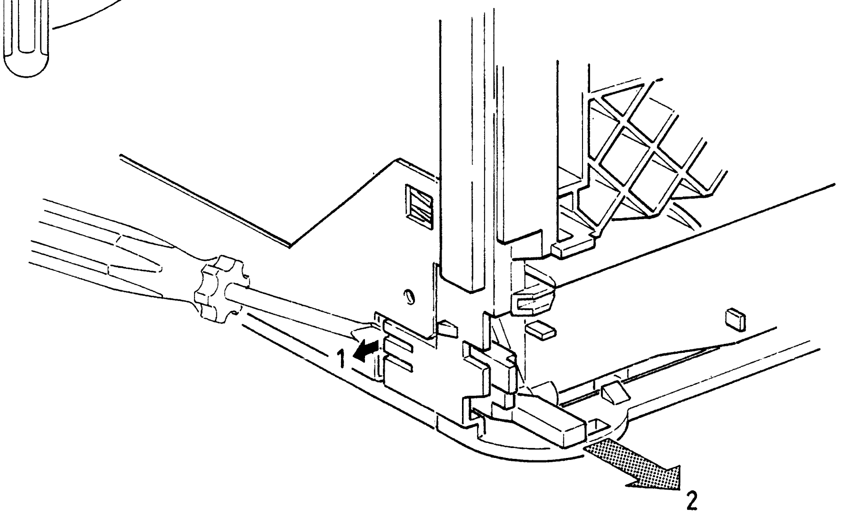

2
1
1 (5×)
1
3
3
3
3
3
4
4
4
1
1
1
5
5
5
5
8
2
1
1
6
7

Dismantling of set/frontpart

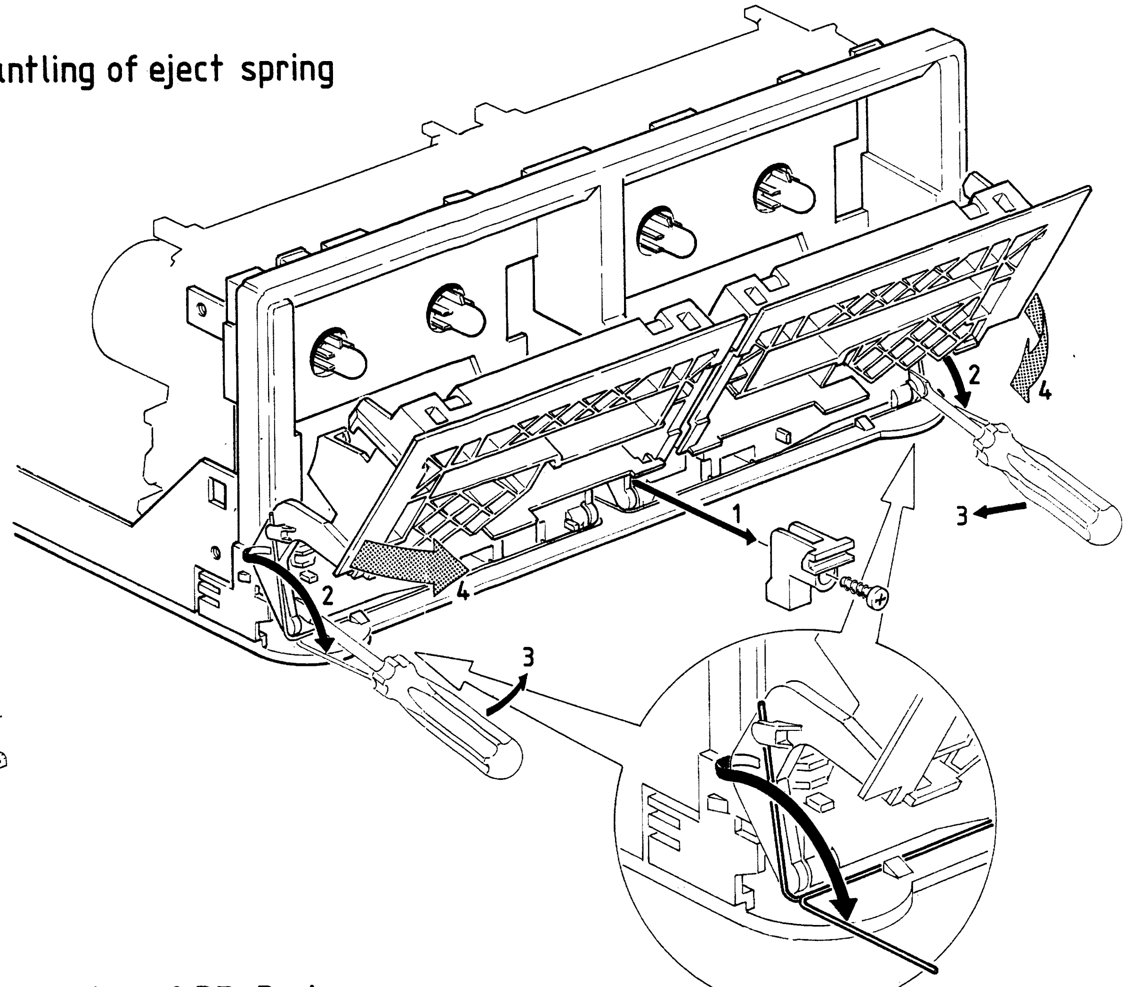
Dismantling of cassette window



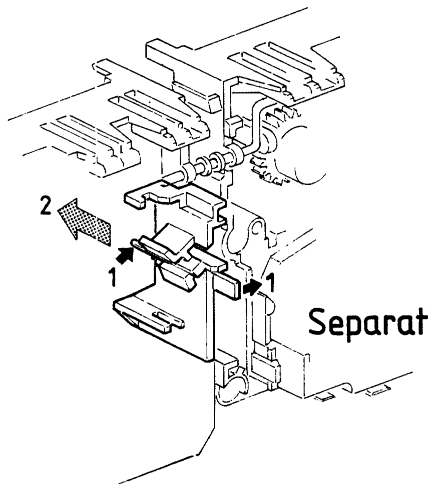
Dismantling of led holder



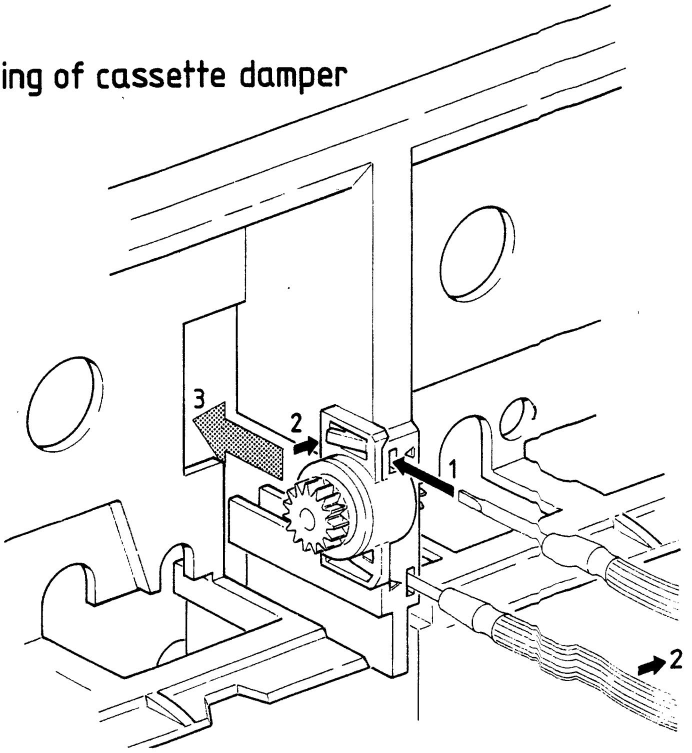
Dismantling of eject button



Dismantling of eject spring



Separation of RE-Decks

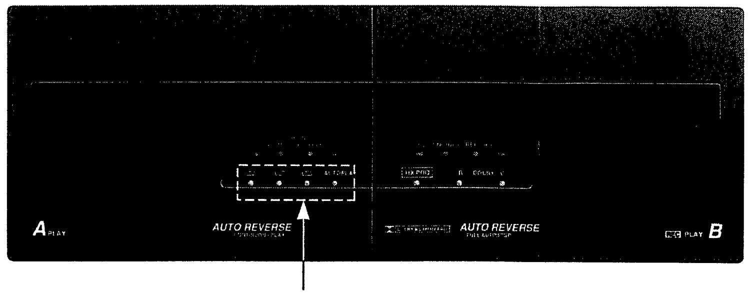


Dismantling of cassette damper

Service Testprogram

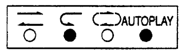
General

This program is divided into 15 tests. You can choose each test by pressing FAST FORWARD (▸▸) respectively REWIND (◂◂) of deck **A**. The selected test is binary shown by the four PLAY MODE LEDS
(⇄ ↶ ↻ AUTOPLAY).
Each test must be activated by the NORMAL SPEED DUBBING button.



These four LEDs indicate the testnumber (binary coded)

For Example



0 1 0 1 =5

To get into the Service Testprogram hold the NORMAL SPEED DUBBING and the HIGH SPEED DUBBING button depressed while POWER ON. (The set responses with all leds on for one second.)

Service Test functions:

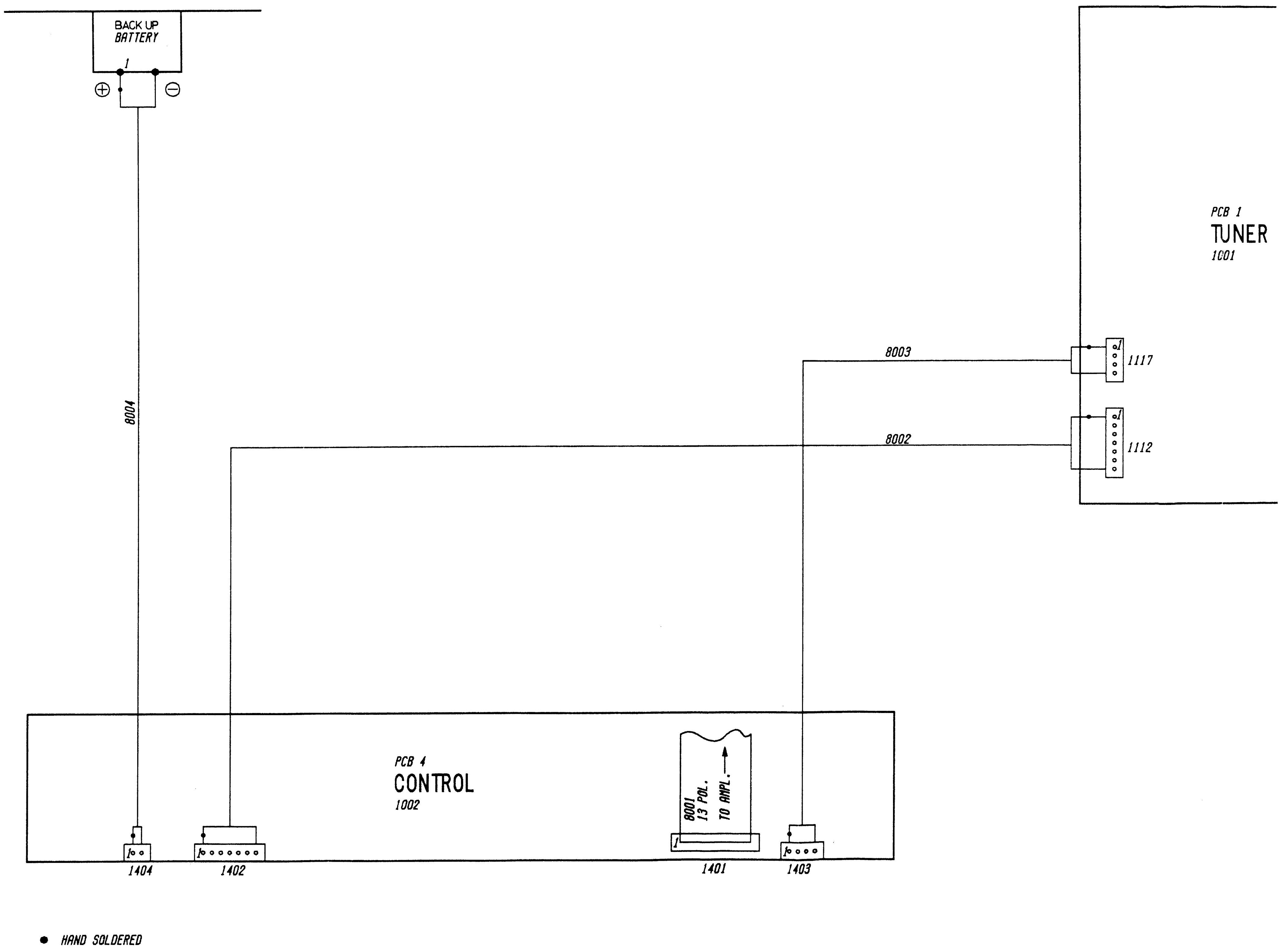
No.	Binary	Description
1	0001	Processor test This test makes an internal RAM check. In error case the RECORD led is on.
2	0010	LED on. This test is a quick indication if the leds are ok.
3	0011	LED off. This test is a quick indication if the shift registers 7406, 7407 are able to hold their outputs high.
4	0100	Shift logical "1" trough all leds. Pressing the PLAY MODE button on deck **A** switches the next led on. This is a quick check if the shift registers 7406, 7407 work correct and also an indication if there is a shortcircuit between the leds.
5	0101	Key test After start all leds are dark.

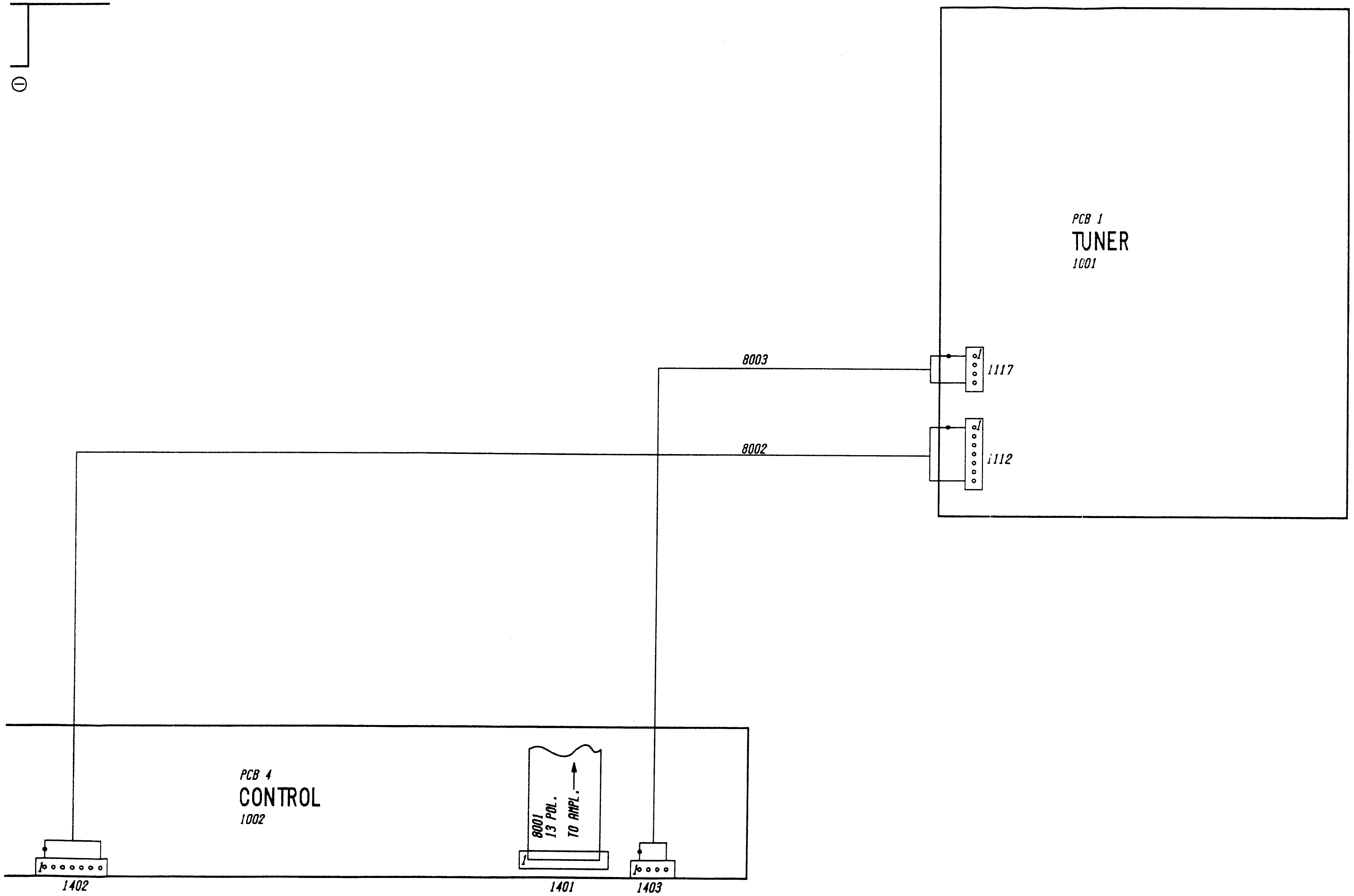
pressed key	**activated led**
PLAY MODE	◁ on deck **A**
PLAY (◀) **A**	NORMAL DUBBING
STOP (■) **A**	HIGH SPPED DUBBING
PLAY (▶) **A**	▷ on deck **A**
REWIND (◀◀) **A**	MODE 1 ⇄
FAST FORWARD (▶▶)**A**	MODE 2 ↶
DUBBING	MODE 3 ↻
HIGH SPEED DUBBING	MODE 4 AUTOPLAY
CD SYNCHRO	◁ on deck **B**
RECORD PREPARED	CD SYNCHRO
REWIND (◀◀) **B**	RECORD
FAST FORWARD (▶▶) **B**	▷ on deck **B**
PLAY (◀) **B**	DOLBY B
STOP (■) **B**	DOLBY C
PLAY (▶) **B**	◁ + CD SYNCHRO + RECORD + ▷
DOLBY B/C	DOLBY B + DOLBC C

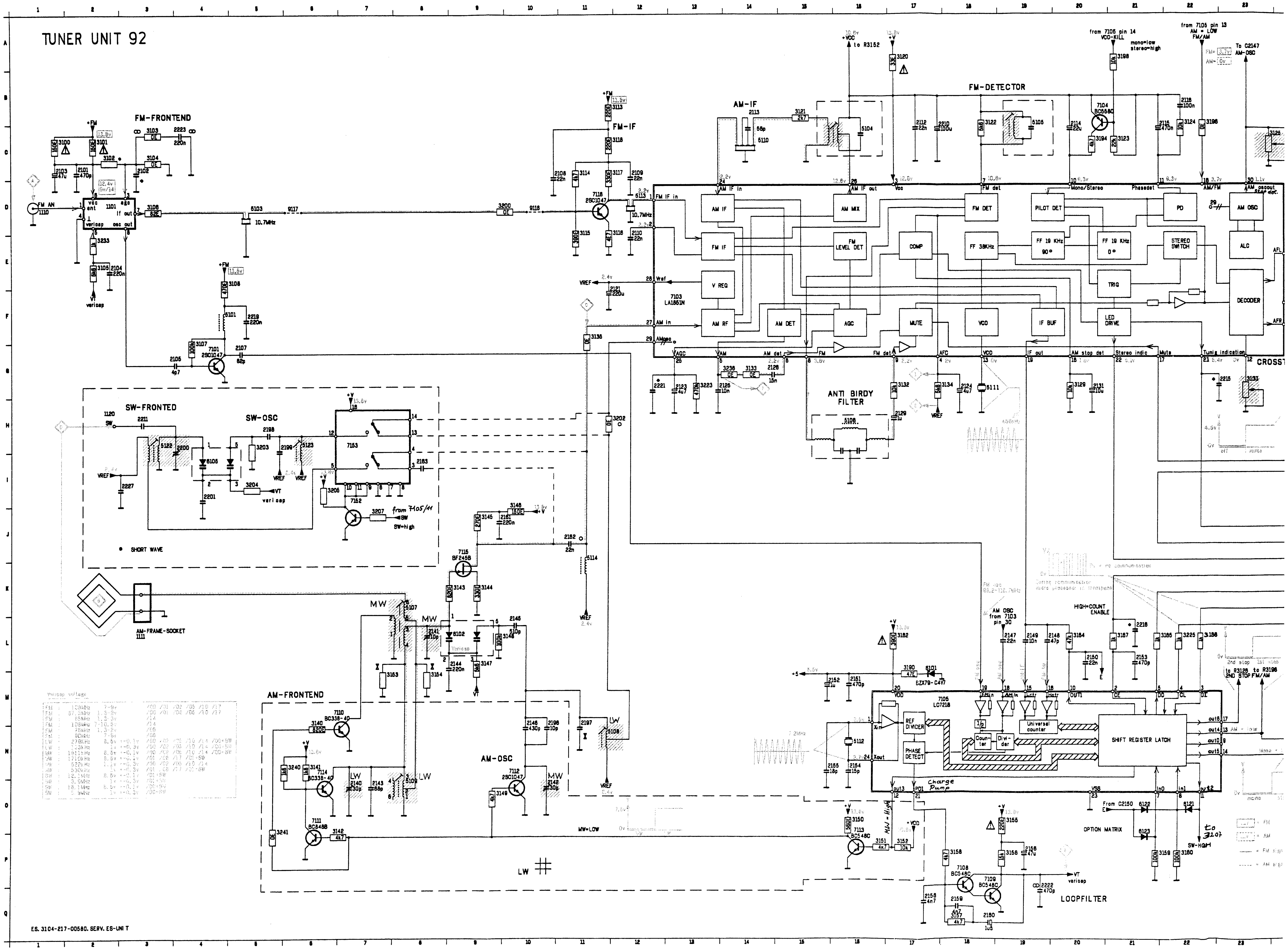
To leave the key test press DUBBING key longer than one second.

No.	Binary	Description
6	0110	Quartz test On pin 20 of IC7405 a frequency of 1,96kHz occur.
7	0111	Easy link input/output test 5 LOW pulses are sendet from IC7405 pin 54. These pulses are received via TS7403 and 7404 from IC7405 pin 18. In error case the RECORD led is on.
8	1000	Easy link input test All activities of pin 4 from connector 1401 (Easy Link in/out) are indicated on the RECORD led. If you apply a logical "0" on pin 4 the RECORD led is switched off. Otherwise it´s switched on.
9	1001	Communication test IC 7405 tries to communiocate with IC7709 on the RE CORDER/DIGITAL PART. If communication is ok the leds ◁ ○ ○ ▷ of deck A and ◁ ○ ○ ▷ of deck B are off. Otherwise one or more leds are on.
10	1010	Read RE Module version. The version is biary displayed on the leds ◁ ○ ○ ▷ of deck A and ◁ ○ ○ ▷ of deck B. i.e. ◀ ○ ○ ▶ ◀ ○ ○ ▷ means Version 98.
11	1011	Solenoid test Activates solenoid of deck **B** for 13 seconds and than of deck **A** for 13 seconds.
12	1100	Play deck **A** in HIGH SPEED During this mode no output via DCC out respectively phones.
13	1101	Play deck **B** in HIGH SPEED During this mode no output via DCC out respectively phones.
14	1110	Read the tape deck software version. The version is biary displayed on the leds ◁ ○ ○ ▷ of deck A and ◁ ○ ○ ▷ of deck B. i.e. ◀ ○ ○ ▶ ◁ ● ● ▷ means Version 96.
15	1111	End of Service mode.

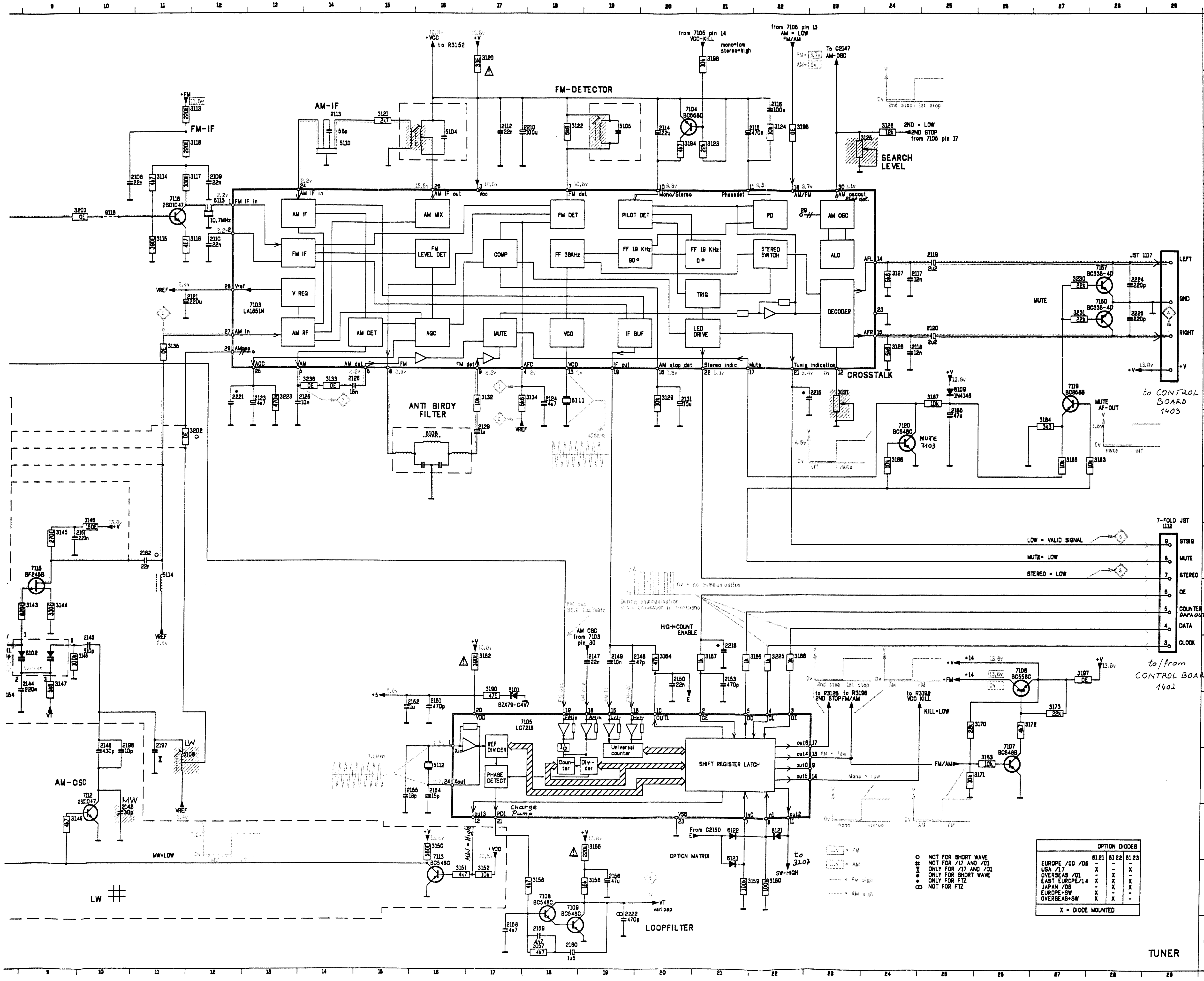
WIRING DIAGRAM


BACK UP BATTERY
1
⊕
⊖
8004
8003
8002
PCB 1
TUNER
1001
1117
1112
PCB 4
CONTROL
1002
8001
13 POL.
TO AMPL.
1404
1402
1401
1403
● HAND SOLDERED


PCB 1
TUNER
PCB 4
CONTROL
13 POL.
TO AMPL.


TUNER UNIT 92
FM-FRONTEND
FM AN
1110
1101
3100
3101
3102
3103
3104
3106
3233
3105
2103
2101
2102
2104
2223
vc
varicap
5103
10.7MHz
9117
3200
9118
FM-IF
3113
3116
3117
3114
3115
3118
2108
2109
2110
7118
2SC1047
5113
10.7MHz
AM-IF
2113
68p
5110
3121
2k7
5104
FM-DETECTOR
3122
5105
2112
2210
2114
7104
BC558C
3194
3123
2118
2115
3124
3198
3120
to R3152
from 7105 pin 14
VCO-KILL
mono=low
stereo=high
from 7105 pin 13
AM = LOW
FM/AM
To C2147
AM-OSC
7103
LA1851N
FM IF in
AM IF in
AM IF out
Vcc
FM det
Mono/Stereo
Phasedet
AM/FM
AM oscout
AM IF
AM MIX
FM DET
PILOT DET
PD
AM OSC
FM IF
FM LEVEL DET
COMP
FF 38KHz
FF 19 KHz 90°
FF 19 KHz 0°
STEREO SWITCH
ALC
V REG
TRIG
DECODER
AM RF
AM DET
AGC
MUTE
VCO
IF BUF
LED DRIVE
Vref
AM in
AMosc
AGC
VAM
AM det
FM
FM det
AFC
VCO
IF out
AM stop det
Stereo indic
Mute
Tuning indication
AFL
AFR
CROSST
3108
5101
2219
3107
7101
2SC1047
2105
4p7
2107
82p
3136
3202
ANTI BIRDY FILTER
5108
3238
3133
2126
2221
2123
3223
2125
3132
2129
3134
2124
5111
3129
2131
2215
3131
SW-FRONTED
1120
SW
2211
5122
2200
6105
2227
2201
SW-OSC
2198
3203
2199
5123
3204
VT
varicap
7153
3205
7152
3207
from 7105/11
SW
SW-high
2183
SHORT WAVE
3148
150E
3145
2161
220n
2182
22n
5114
7115
BF245B
3143
3144
AM-FRAME-SOCKET
1111
MW
5107
2141
6102
2145
510p
3146
2144
3147
3153
3154
Varicap
AM-FRONTEND
7110
BC338-40
3140
820E
3240
3141
7114
BC338-40
LW
2140
2143
5109
LW
AM-OSC
7112
2SC1047
MW
2142
2146
2196
2197
LW
5106
3149
7111
BC548B
3241
3142
4k7
MW=LOW
LW
Varicap voltage
3182
3190
47E
6101
BZX79-C4V7
+5
2152
2151
470p
7105
LC7218
REF DIVIDER
PHASE DETECT
Counter
Divider
Universal counter
SHIFT REGISTER LATCH
Xin
Xout
5112
2155
18p
2154
15p
Charge Pump
PD1
VSS
In0
In1
out17
out14
out0
out15
AM = low
HIGH=COUNT ENABLE
FM osc 88,2-112,7MHz
AM OSC from 7103 pin 30
2147
22n
2149
10n
2148
47p
3184
2150
22n
3187
2216
2153
470p
3185
3225
3186
2nd stop
1st stop
to R3126
to R3198
2ND STOP FM/AM
From C2150
6122
6121
6123
to 3207
SW-HIGH
OPTION MATRIX
3159
3180
3150
7113
BC548C
MW=High
3151
4k7
3152
10k
+VCC
3155
3158
3156
2158
47u
7108
BC548C
7109
BC548C
2222
470p
VT
varicap
LOOPFILTER
2159
4n7
3157
4k7
2160
1u5
2156
4n7
mono
stereo
ES. 3104-217-00580. SERV. ES-UNIT

CS 48 557


FM-IF
AM-IF
FM-DETECTOR
SEARCH LEVEL
7103 LA1851N
AM IF
AM MIX
FM DET
PILOT DET
PD
AM OSC
FM IF
FM LEVEL DET
COMP
FF 38KHz
FF 19 KHz 90°
FF 19 KHz 0°
STEREO SWITCH
ALC
V REG
TRIG
DECODER
AM RF
AM DET
AGC
MUTE
VCO
IF BUF
LED DRIVE
CROSSTALK
ANTI BIRDY FILTER
7105 LC7218
REF DIVIDER
PHASE DETECT
Counter
Divider
Universal counter
SHIFT REGISTER LATCH
Charge Pump
LOOPFILTER
OPTION MATRIX
AM-OSC
MW
LW
JST 1117
LEFT
GND
RIGHT
+V
to CONTROL BOARD 1403
7-FOLD JST 1112
STSIG
MUTE
STEREO
CE
COUNTER DATA OUT
DATA
CLOCK
to/from CONTROL BOARD 1402
LOW = VALID SIGNAL
MUTE= LOW
STEREO = LOW
HIGH=COUNT ENABLE
2ND = LOW
2ND STOP from 7105 pin 17
from 7105 pin 14 VCO-KILL
from 7105 pin 13 AM = LOW FM/AM
To C2147 AM-OSC
MUTE AF-OUT
MUTE 7103
MW=LOW
SW-HIGH
KILL=LOW
to R3126 to R3196 2ND STOP FM/AM
to R3182 VCO KILL
to 3207
From C2150
AM OSC from 7103 pin 30
VT varicap

TUNER

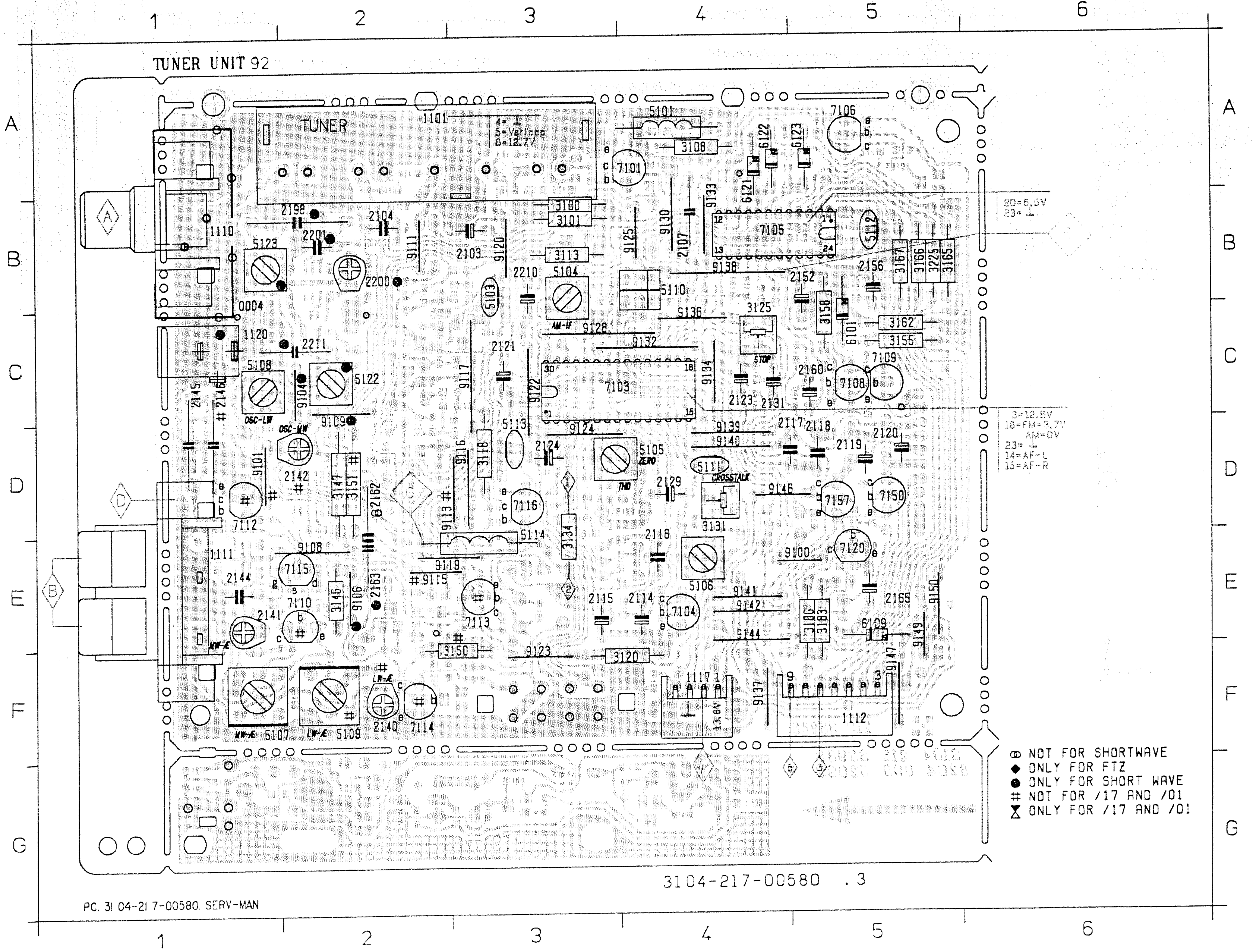
○ NOT FOR SHORT WAVE
NOT FOR /17 AND /01
⧗ ONLY FOR /17 AND /01
● ONLY FOR SHORT WAVE
◆ ONLY FOR FTZ
∞ NOT FOR FTZ

OPTION DIODES	6121	6122	6123
EUROPE /00 /06	-	-	-
USA /17	X	-	X
OVERSEAS /01	-	X	-
EAST EUROPE/14	X	X	X
JAPAN /08	-	X	X
EUROPE+SW	X	-	-
OVERSEAS+SW	X	X	-

X = DIODE MOUNTED

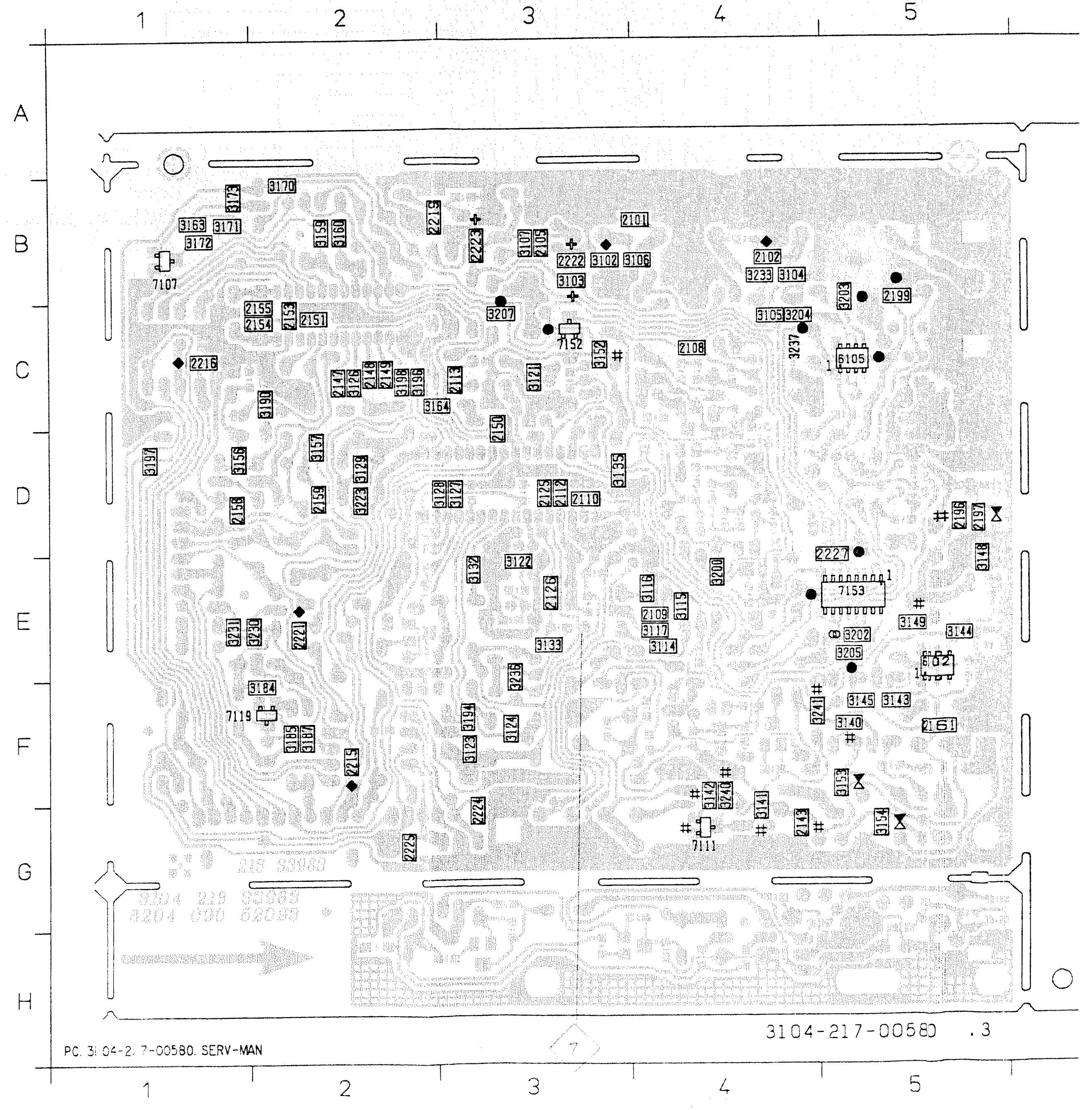
1101	D 2	7101	G 4
2101	C 2	7103	F19
2102	C 3	7104	B20
2103	C 1	7105	M18
2104	E 2	7106	L26
2105	G 4	7107	M26
2107	G 5	7108	P18
2108	C10	7109	P18
2109	C12	7110	M 7
2110	D12	7111	O 6
2112	B17	7112	N10
2113	B14	7113	O16
2114	C20	7114	N 6
2115	C21	7115	J 9
2116	B22	7116	D11
2117	E24	7119	G27
2118	F24	7120	H24
2119	E25	7150	F28
2120	F25	7152	I 7
2121	F11	7153	H 7
2123	G13	7157	E28
2124	G18	9116	D10
2125	G13	9117	D 6
2126	G14		
2129	H17		
2131	G20		
2140	O 7		
2141	L 8		
2142	O10		
2143	O 7		
2144	L 8		
2145	L10		
2146	M10		
2147	L19		
2148	L19		
2149	L19		
2150	L20		
2151	M16		
2152	M15		
2153	L21		
2154	N16		
2155	N15		
2156	P19		
2158	Q17		
2159	Q18		
2160	Q18		
2161	J 9		
2162	J11		
2163	I 8		
2165	H25		
2196	M10		
2197	M11		
2198	H 5		
2199	H 5		
2200	H 3		
2201	I 4		
2210	C17		
2211	H 3		
2215	G22		
2216	L21		
2219	F 5		
2221	G12		
2222	P19		
2223	C 4		
2224	E28		
2225	F28		
2227	I 2		
3100	C 1		
3101	C 2		
3102	C 2		
3103	C 3		
3104	C 3		
3105	E 2		
3106	D 3		
3107	F 4		
3108	E 4		
3113	B11		
3114	C11		
3115	D11		
3116	D11		
3117	C11		
3118	C11		
3120	A17		
3121	B15		
3122	B18		
3123	C21		
3124	B22		
3126	B24		
3127	E24		
3128	F24		
3129	G20		
3132	G17		
3133	G14		
3134	G17		
3135	F11		
3140	M 6		
3141	N 6		
3142	O 7		
3143	K 8		
3144	K 9		
3145	J 9		
3146	I10		
3147	L 9		
3148	L 9		
3149	O 9		
3150	O16		
3151	P16		
3152	P17		
3153	M 7		
3154	M 8		
3155	O19		
3156	P19		
3157	Q18		
3158	P18		
3159	P21		
3160	P22		
3162	L17		
3163	N26		
3164	L20		
3165	L21		
3166	L22		
3167	L21		
3170	M25		
3171	N25		
3172	M26		
3173	M27		
3183	H27		
3184	H27		
3185	H27		
3186	H24		
3187	G25		
3190	L17		
3194	C20		
3196	B22		
3197	L27		
3198	A21		
3200	D10		
3202	H11		
3203	H 5		
3204	I 5		
3205	I 6		
3207	J 7		
3223	G13		
3225	L22		
3230	E27		
3231	F27		
3233	E 2		
3236	G14		
3240	N 5		
3241	O 5		
5104	C16		
5105	B19		
5106	H16		
5107	K 8		
5111	G18		
5112	N16		
6101	L17		
6102	L 8		
6105	I 4		
6109	G25		
6121	O22		
6122	O21		
6123	O21		

0004	B1
1101	A2
1110	B1
1111	E1
1112	F5
1117	F4
1120	C1
2103	B3
2104	B2
2107	B4
2114	E4
2115	E3
2116	E4
2117	D5
2118	D5
2119	D5
2120	D5
2121	C3
2123	C4
2124	D3
2129	D4
2131	C4
2140	F2
2141	E1
2142	D2
2144	E1
2145	C1
2146	C1
2152	B5
2156	B5
2160	C5
2162	D2
2163	E2
2165	E5
2198	B2
2200	B2
2201	B2
2210	B3
2211	C2
3100	B3
3101	B3
3108	A4
3113	B3
3118	D3
3120	F4
3125	C4
3131	D4
3134	E3
3146	E2
3147	D2
3150	F3
3151	D2
3155	C5
3158	C5
3162	C5
3165	B5
3166	B5
3167	B5
3183	E5
3186	E5
3225	B5
5101	A4
5103	B3
5104	B3
5105	D4
5106	E4
5107	F1
5108	C1
5109	F2
5110	B4
5111	D4
5112	B5
5113	D3
5114	E3
5122	C2
5123	B1
6101	C5
6109	E5
6121	A4
6122	A4
6123	A5
7101	A4
7103	C3
7104	E4
7105	B4
7106	A5
7108	C5
7109	C5
7110	E2
7112	D1
7113	E3
7114	F2
7115	E2
7116	D3
7120	E5
7150	D5
7157	D5
9100	E5
9101	D1
9104	C2
9106	E2
9108	E2
9109	D2
9111	B2
9113	D2
9115	E2
9116	D3
9117	C3
9119	E2
9120	B3
9122	C3
9123	F3
9124	D3
9125	B4
9128	C3
9130	B4
9132	C4
9133	B4
9134	C4
9136	C4
9137	F4
9138	B4
9139	D4
9140	D4
9141	E4
9142	E4
9144	E4
9146	D4
9147	F5
9149	E5
9150	E5

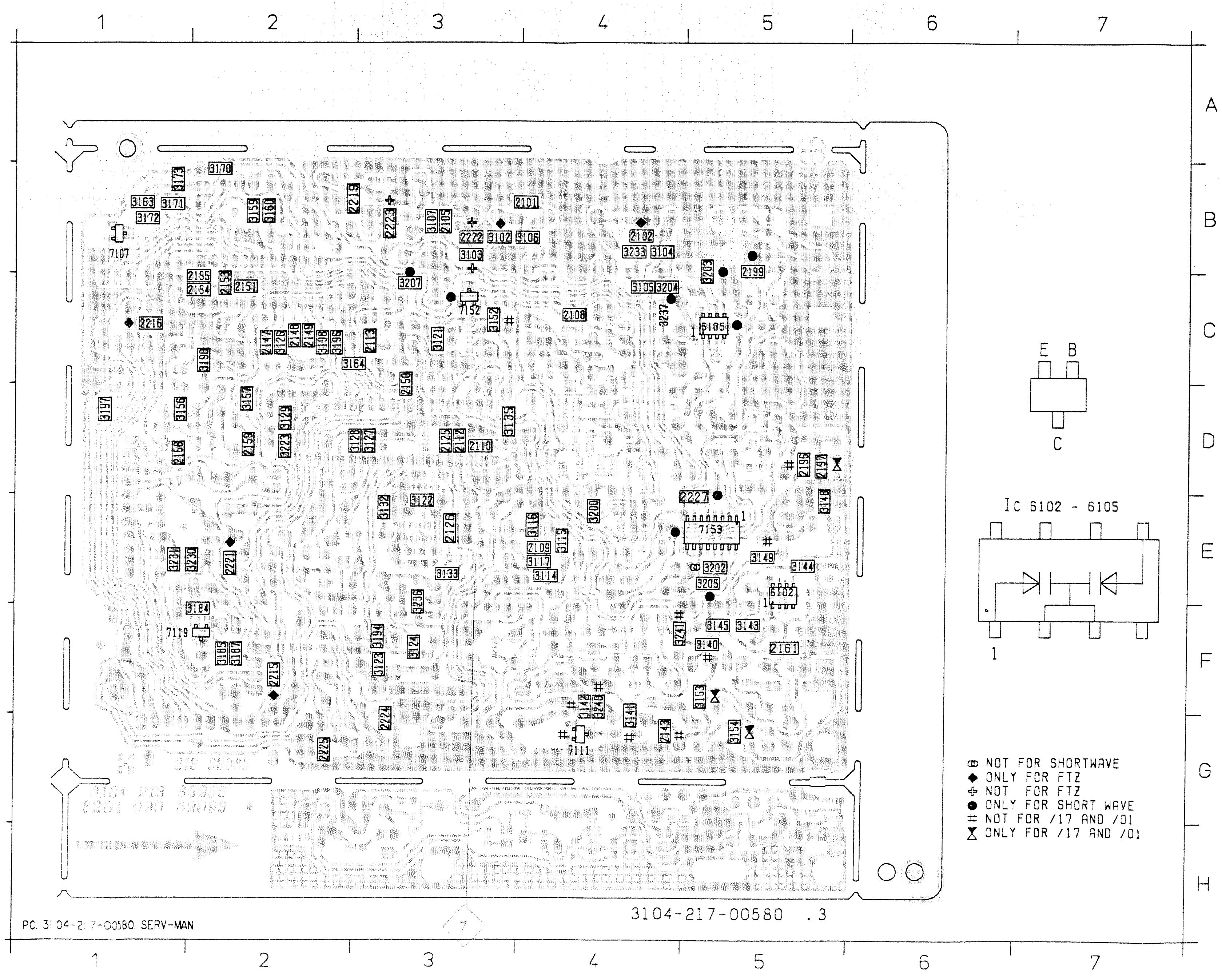

1
2
3
4
5
6
A
B
C
D
E
F
G
TUNER UNIT 92
TUNER
1101
4=⊥
5=Varicap
6=12.7V
20=5.6V
23=⊥
3=12.8V
18=FM=3.7V
AM=0V
23=⊥
14=AF-L
15=AF-R
OSC-LW
OSC-MW
AM-IF
STOP
ZERO
THD
CROSSTALK
MW-Æ
LW-Æ
13.6V
1117
1112
3104-217-00580 .3
PC. 31 04-21 7-00580. SERV-MAN

⊗ NOT FOR SHORTWAVE
◆ ONLY FOR FTZ
● ONLY FOR SHORT WAVE
NOT FOR /17 AND /01
⧗ ONLY FOR /17 AND /01

2101	B4
2102	B4
2105	B3
2108	C4
2109	E4
2110	D3
2112	D3
2113	C3
2125	D3
2126	E3
2143	G4
2147	C2
2148	C2
2149	C2
2150	D3
2151	C2
2153	C2
2154	C2
2155	C2
2158	D1
2159	D2
2161	F5
2196	D5
2197	D5
2199	C5
2215	F2
2216	C1
2219	B2
2221	E2
2222	B3
2223	B3
2224	G3
2225	G2
2227	E5
3102	B3
3103	B3
3104	B4
3105	C4
3106	B4
3107	B3
3114	E4
3115	E4
3116	E4
3117	E4
3121	C3
3122	E3
3123	F3
3124	F3
3126	C2
3127	D3
3128	D3
3129	D2
3132	E3
3133	E3
3135	D3
3140	F5
3141	G4
3142	F4
3143	F5
3144	E5
3145	F5
3148	E5
3149	E5
3152	C3
3153	F5
3154	G5
3156	D1
3157	D2
3159	B2
3160	B2
3163	B1
3164	C2
3170	B2
3171	B1
3172	B1
3173	B1
3184	F2
3185	F2
3187	F2
3190	C2
3194	F3
3196	C2
3197	D1
3198	C2
3200	E4
3202	E5
3203	B5
3204	C4
3205	E5
3207	C3
3223	D2
3230	E2
3231	E1
3233	B4
3236	E3
3237	C4
3240	F4
3241	F4
6102	E5

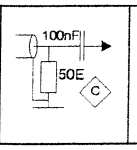

1
2
3
4
5
A
B
C
D
E
F
G
H
7107
7152
7153
7111
7119
3104-217-00580 .3
PC. 31 04-2. 7-00580. SERV-MAN
3104 219 50583
3204 000 52083

2101	B4	2147	C2	2196	D5	2227	E5	3121	C3	3140	F5	3156	D1	3185	F2	3205	E5	6105	C5
2102	B4	2148	C2	2197	D5	3102	B3	3122	E3	3141	G4	3157	D2	3187	F2	3207	C3	7107	B1
2105	B3	2149	C2	2199	C5	3103	B3	3123	F3	3142	F4	3159	B2	3190	C2	3223	D2	7111	G4
2108	C4	2150	D3	2215	F2	3104	B4	3124	F3	3143	F5	3160	B2	3194	F3	3230	E2	7119	F1
2109	E4	2151	C2	2216	C1	3105	C4	3126	C2	3144	E5	3163	B1	3196	C2	3231	E1	7152	C3
2110	D3	2153	C2	2219	B2	3106	B4	3127	D3	3145	F5	3164	C2	3197	D1	3233	B4	7153	E5
2112	D3	2154	C2	2221	E2	3107	B3	3128	D3	3148	E5	3170	B2	3198	C2	3236	E3		
2113	C3	2155	C2	2222	B3	3114	E4	3129	D2	3149	E5	3171	B1	3200	E4	3237	C4		
2125	D3	2158	D1	2223	B3	3115	E4	3132	E3	3152	C3	3172	B1	3202	E5	3240	F4		
2126	E3	2159	D2	2224	G3	3116	E4	3133	E3	3153	F5	3173	B1	3203	B5	3241	F4		
2143	G4	2161	F5	2225	G2	3117	E4	3135	D3	3154	G5	3184	F2	3204	C4	6102	E5		



⊕ NOT FOR SHORTWAVE
◆ ONLY FOR FTZ
✣ NOT FOR FTZ
● ONLY FOR SHORT WAVE
⌗ NOT FOR /17 AND /01
⧗ ONLY FOR /17 AND /01

TUNER Adjustment table

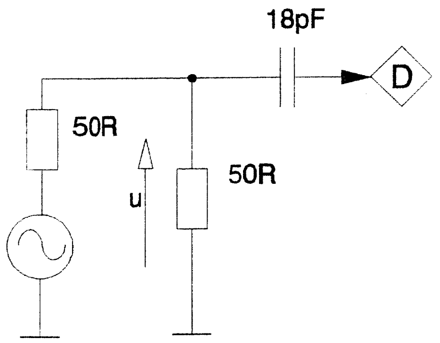
Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
VARICAP ALIGNMENT						
FM /00/01/02/05 /10/17			108 MHz	check	6	7....9V
87.5 - 108MHz			87.5MHz	check		1.3....2V
FM /14			108 MHz	check		7...10,5V
65 - 108MHz			65 MHz	check		1,5....3V
FM /06			90MHz	check		7....9V
76 - 90MHz			76MHz	check		1.3....2V
AM /01/06/17			1710kHz	5108		8.5V ± 0.1V
530 - 1710kHz			530kHz	check		1V ± 0.3V
LW /00/02/05/10 /14			279kHz	5108		8.5V ± 0.1V
153 - 279kHz			153kHz	check		1V ± 0.1V
MW /00/02/05/10 /14			1611kHz	2142		8.5V ± 0.1V
522 - 1611kHz			522kHz	check		1.1V ± 0.3V
SW /00+SW			18,1MHz	5123		8.5V ± 0.1V
5,9 - 18,1MHz			5,9MHz	check		1.1V ± 0.3V
SW /01+SW			12,1MHz	5123		8.5V ± 0.1V
3,9 - 12,1MHz			3,9MHz	check		1.1V ± 0.3V
FM IF						
FM	98 MHz 1mV (85 MHz /06) mod = 1kHz Δf = 75kHz	A	98MHz	5105	1 2	0V ± 20mV
STEREO CROSSTALK						
FM	98 MHz 1mV (85 MHz /06) 90% Left +9% pilot	A	98MHz	check	3	low < 1V
				3131	4	Right channel minimum
SEARCH SENSITIVITY						
FM	98 MHz 15µV (85 MHz /06) mod = 1kHz Δf = 75kHz	A	98MHz	3125	5	Switches just from High to Low
AM - IF						
MW	1494kHz Δf = 10kHz as low as possible		1494kHz	5104	7	symmetrical and max height

TUNER Adjustment table

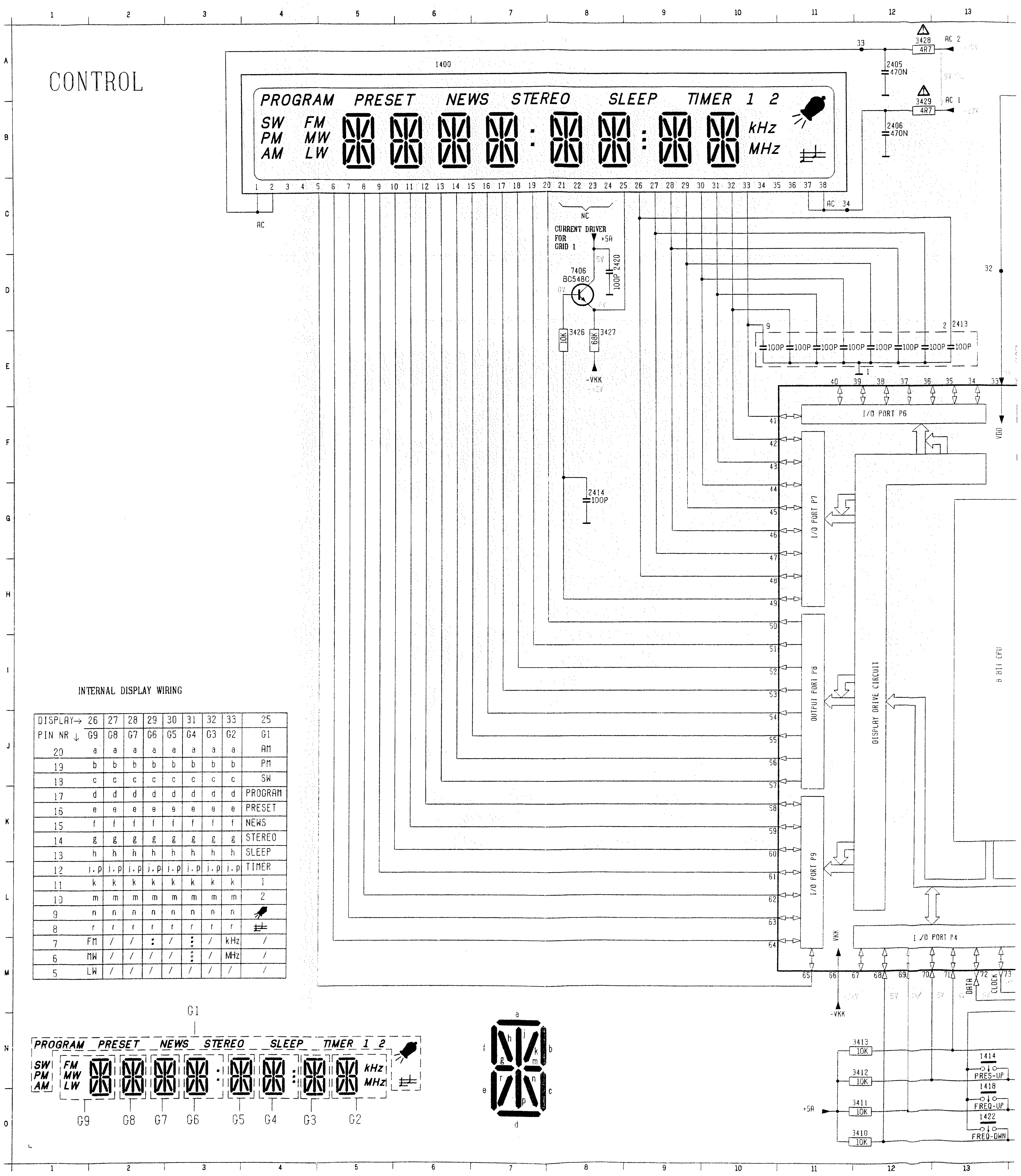
Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
AM - RF						
MW /00/02/05 /10/14 mod= 1 kHz 30% AM	558kHz	B	558kHz	5107	7	MAX ↕
	1494kHz		1494kHz	2141		
MW /01/06/17 mod= 1 kHz 30% AM	560kHz		560kHz	5107		MAX ↕
	1600kHz		1600kHz	2141		
LW mod= 1 kHz 30% AM	155kHz		155kHz	5109		MAX ↕
	270kHz		270kHz	2140		
SW /00+SW mod= 1 kHz 30% AM	5,9MHz	D 1)	5,9MHz	5122		MAX ↕
	18,1MHz		18,1MHz	2200		
SW /00+SW mod= 1 kHz 30% AM	3,9MHz		3,9MHz	5122		MAX ↕
	12,1MHz		12,1MHz	2200		

[1] SW measured via aerial replacement capacitor 18pF

↕ repeat



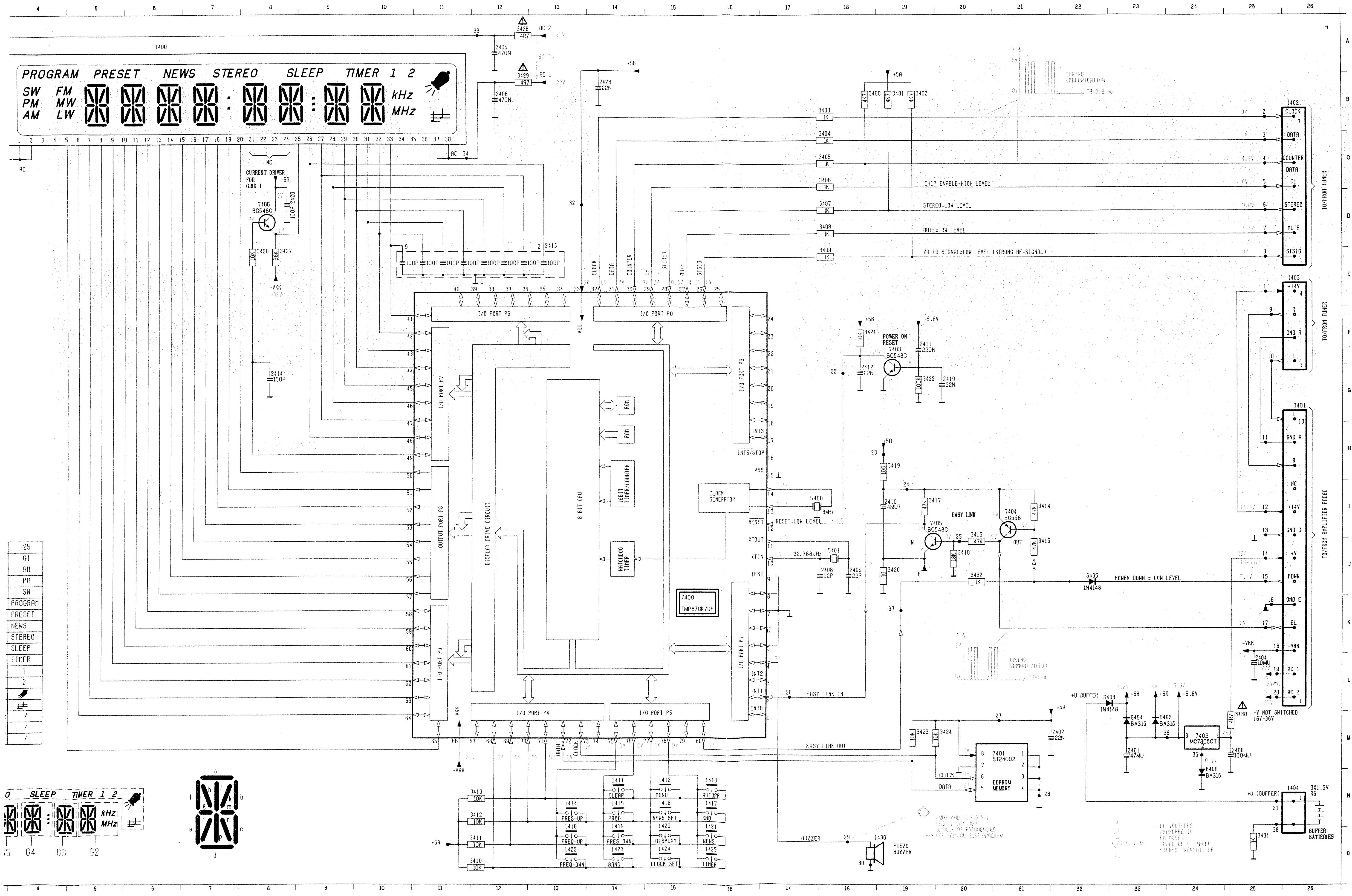
18pF
D
50R
u
50R



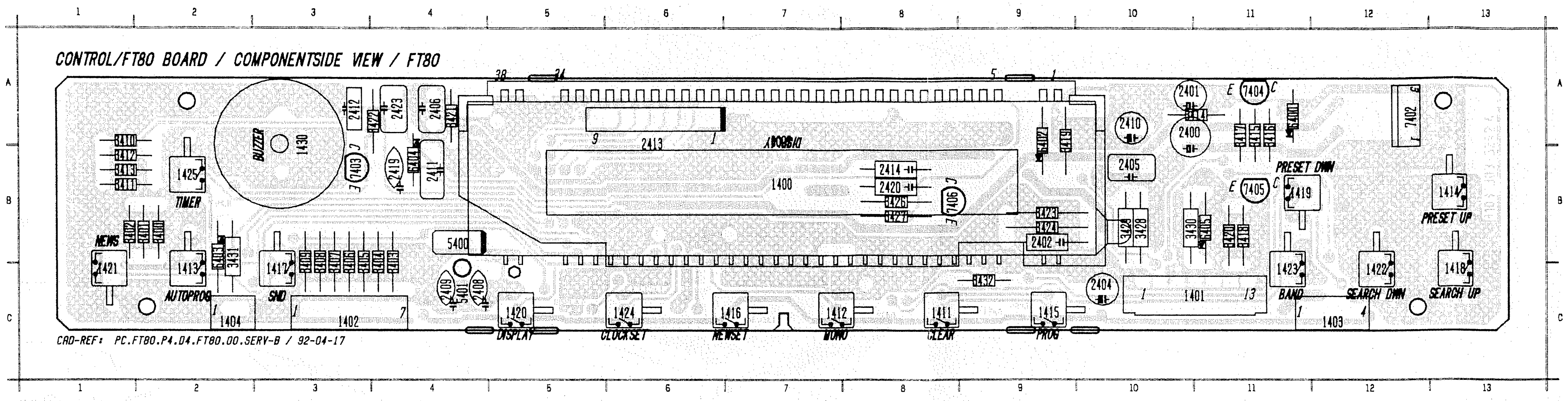
CONTROL
1400
PROGRAM PRESET NEWS STEREO SLEEP TIMER 1 2
SW FM
PM MW
AM LW
kHz
MHz
CURRENT DRIVER FOR GRID 1
7406 BC548C
3426 10K
3427 68K
2420 100P
2414 100P
-VKK
+5A
3428 4R7
3429 4R7
2405 470N
2406 470N
2413
I/O PORT P6
I/O PORT P7
OUTPUT PORT P8
I/O PORT P9
I/O PORT P4
DISPLAY DRIVE CIRCUIT
8 BIT CPU
VKK
DATA
CLOCK
3413 10K
3412 10K
3411 10K
3410 10K
1414 PRES-UP
1418 FREQ-UP
1422 FREQ-DWN
G1
G9 G8 G7 G6 G5 G4 G3 G2
a b c d e f h j k m n p r

INTERNAL DISPLAY WIRING

DISPLAY→	26	27	28	29	30	31	32	33	25
PIN NR ↓	G9	G8	G7	G6	G5	G4	G3	G2	G1
20	a	a	a	a	a	a	a	a	AM
19	b	b	b	b	b	b	b	b	PM
18	c	c	c	c	c	c	c	c	SW
17	d	d	d	d	d	d	d	d	PROGRAM
16	e	e	e	e	e	e	e	e	PRESET
15	f	f	f	f	f	f	f	f	NEWS
14	g	g	g	g	g	g	g	g	STEREO
13	h	h	h	h	h	h	h	h	SLEEP
12	j, p	j, p	j, p	j, p	j, p	j, p	j, p	j, p	TIMER
11	k	k	k	k	k	k	k	k	1
10	m	m	m	m	m	m	m	m	2
9	n	n	n	n	n	n	n	n	
8	r	r	r	r	r	r	r	r	
7	FM	/	/	:	/	:	/	kHz	/
6	MW	/	/	/	/	:	/	MHz	/
5	LW	/	/	/	/	/	/	/	/


PROGRAM PRESET NEWS STEREO SLEEP TIMER 1 2
SW FM
PM MW
AM LW
kHz
MHz
1400
AC
3428 4R7 AC 2
3429 4R7 AC 1
2405 470N
2406 470N
+5B
2423 22N
AC 34
NC
CURRENT DRIVER FOR GRID 1
+5A
7406 BC548C
2420 100P
3426 10K
3427 68K
-VKK
2413
100P
2414 100P
CLOCK
DATA
COUNTER
CE
STEREO
MUTE
STSIG
I/O PORT P6
I/O PORT P0
I/O PORT P7
I/O PORT P3
OUTPUT PORT P8
I/O PORT P9
I/O PORT P1
I/O PORT P4
I/O PORT P5
DISPLAY DRIVE CIRCUIT
8 BIT CPU
ROM
RAM
16BIT TIMER/COUNTER
WATCHDOG TIMER
CLOCK GENERATOR
7400 TMP87CK70F
VDD
VKK
INT3
INT5/STOP
VSS
RESET
XTOUT
XTIN
TEST
INT2
INT1
INT0
5400 8MHz
5401 32.768kHz
2408 22P
2409 22P
RESET=LOW LEVEL
3403 1K
3404 1K
3405 1K
3406 1K
3407 1K
3408 1K
3409 1K
3400 4K7
3401 4K7
3402 4K7
CHIP ENABLE=HIGH LEVEL
STEREO=LOW LEVEL
MUTE=LOW LEVEL
VALID SIGNAL=LOW LEVEL (STRONG HF-SIGNAL)
DURING COMMUNICATION
TB=0.2 ms
1402 CLOCK DATA COUNTER DATA CE STEREO MUTE STSIG
TO/FROM TUNER
1403 +14V R GND A L
TO/FROM TUNER
1401 L GND A R NC +14V GND D +V PDWN GND E EL -VKK AC 1 AC 2
TO/FROM AMPLIFIER FA080
3421 10K
POWER ON RESET
7403 BC548C
2411 220N
2412 22N
3422 100K
2419 22N
+5.6V
3419 100
2410 4MU7
3417 47K
EASY LINK
7404 BC558
3414 47K
7405 BC548C
3416 47K
3418 18K
3415 47K
IN
OUT
3420 10
3432 1K
6405 1N4148
POWER DOWN = LOW LEVEL
EASY LINK IN
EASY LINK OUT
+U BUFFER
6403 1N4148
6404 BA315
6402 BA315
7402 MC7805CT
2401 47MU
2400 100MU
6400 BA315
3430 4R7
+V NOT SWITCHED 16V-36V
2404 10MU
3423 10K
3424 10K
2402 22N
7401 ST24C02 EEPROM MEMORY
CLOCK
DATA
1404 3X1.5V R6
+U (BUFFER)
BUFFER BATTERIES
3431 1K
BUZZER
1430 PIEZO BUZZER
8MHz AND 32.768 kHz (5.5kHz and 4kHz) OSCILLATOR FREQUENCIES → SEE SERVICE TEST PROGRAM
E.V.M.
DC VOLTAGES MEASURED IN FM MODE, TUNED ON A STRONG STEREO TRANSMITTER
1411 CLEAR
1412 MONO
1413 AUTOPR
1414 PRES-UP
1415 PROG
1416 NEWS SET
1417 SND
1418 FREQ-UP
1419 PRES DWN
1420 DISPLAY
1421 NEWS
1422 FREQ-DWN
1423 BAND
1424 CLOCK SET
1425 TIMER
3413 10K
3412 10K
3411 10K
3410 10K
25 G1 AM PM SW PROGRAM PRESET NEWS STEREO SLEEP TIMER 1 2
SLEEP TIMER 1 2
G5 G4 G3 G2
a b c d e f g h j k m n p r

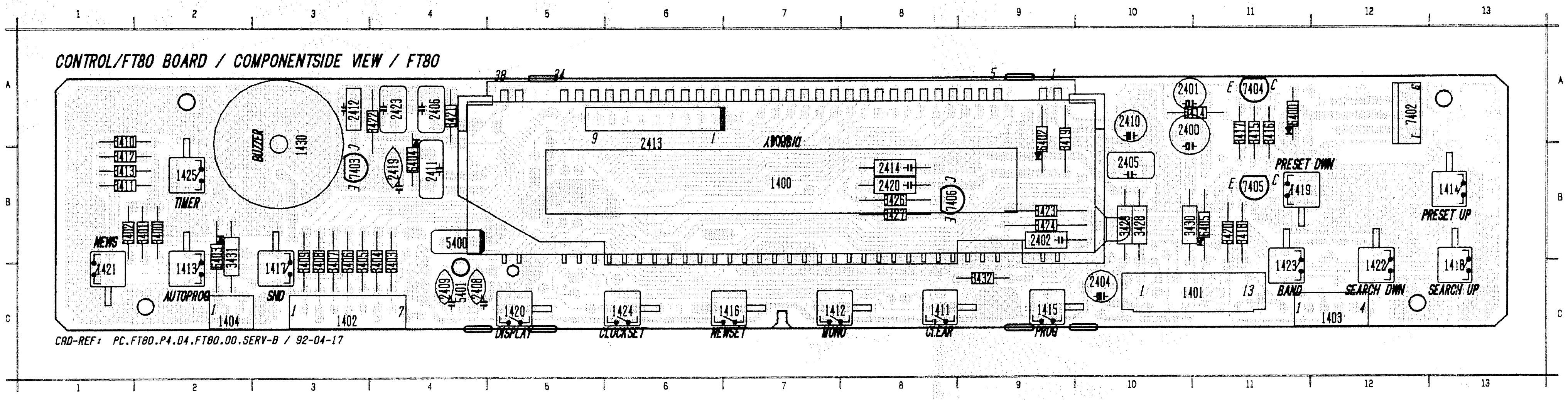
1400	A 6
1401	G26
1402	B26
1403	E26
1404	N26
1411	N14
1412	N15
1413	N15
1414	N13
1415	N14
1416	N15
1417	N15
1418	N13
1419	N14
1420	N15
1421	N15
1422	O13
1423	O14
1424	O15
1425	O15
1430	O19
2400	M25
2401	M23
2402	M21
2404	L25
2405	A12
2406	B12
2408	J17
2409	J18
2410	I19
2411	F19
2412	G18
2413	D13
2414	G 8
2419	G20
2420	D 8
2423	B14
3400	B18
3401	B19
3402	B19
3403	B18
3404	C18
3405	C18
3406	C18
3407	D18
3408	D18
3409	E18
3410	O12
3411	O12
3412	N12
3413	N12
3414	I21
3415	J21
3416	I20
3417	I19
3418	J20
3419	H19
3420	J19
3421	F18
3422	G19
3423	M19
3424	M19
3426	E 8
3427	E 8
3428	A12
3429	B12
3430	M25
3431	O25
3432	J20
5400	I17
5401	J18
6400	N24
6402	M23
6403	L23
6404	M23
6405	J22
7400	K15
7401	M20
7402	M24
7403	F19
7404	I21
7405	I20
7406	D 8



CONTROL/FT80 BOARD / COMPONENTSIDE VIEW / FT80

CAD-REF: PC.FT80.P4.04.FT80.00.SERV-B / 92-04-17

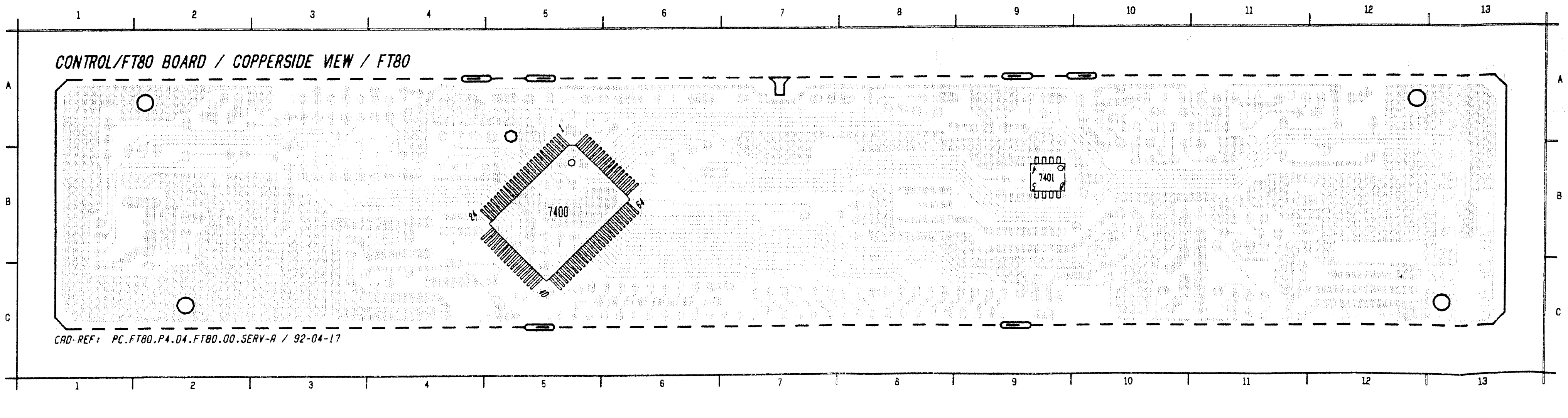
0002	A 7	2404	C10	3412	B 1	6404	B 4
1400	B 7	2405	B10	3413	B 1	6405	B11
1401	C11	2406	A 4	3414	A11	7402	A12
1402	C 3	2408	C 4	3415	A11	7403	B 3
1403	C12	2409	C 4	3416	A11	7404	A11
1404	C 2	2410	A10	3417	A11	7405	B11
1411	C 8	2411	B 4	3418	B11	7406	B 8
1412	C 7	2412	A 3	3419	A 9		
1413	C 2	2413	A 6	3420	B11		
1414	B13	2414	B 8	3421	A 4		
1415	C 9	2419	B 4	3422	A 4		
1416	C 7	2420	B 8	3423	B 9		
1417	C 3	2423	A 4	3424	B 9		
1418	C13	3400	B 2	3426	B 8		
1419	B11	3401	B 2	3427	B 8		
1420	C 5	3402	B 1	3428	B10		
1421	C 1	3403	B 4	3429	B10		
1422	C12	3404	B 4	3430	B10		
1423	C11	3405	B 3	3431	B 2		
1424	C 6	3406	B 3	3432	C 9		
1425	B 2	3407	B 3	5400	B 4		
1430	A 3	3408	B 3	5401	C 4		
2400	A10	3409	B 3	6400	A11		
2401	A10	3410	A 1	6402	A 9		
2402	B 9	3411	B 1	6403	B 2		


CONTROL/FT80 BOARD / COMPONENTSIDE VIEW / FT80

CAD-REF: PC.FT80.P4.04.FT80.00.SERV-B / 92-04-17

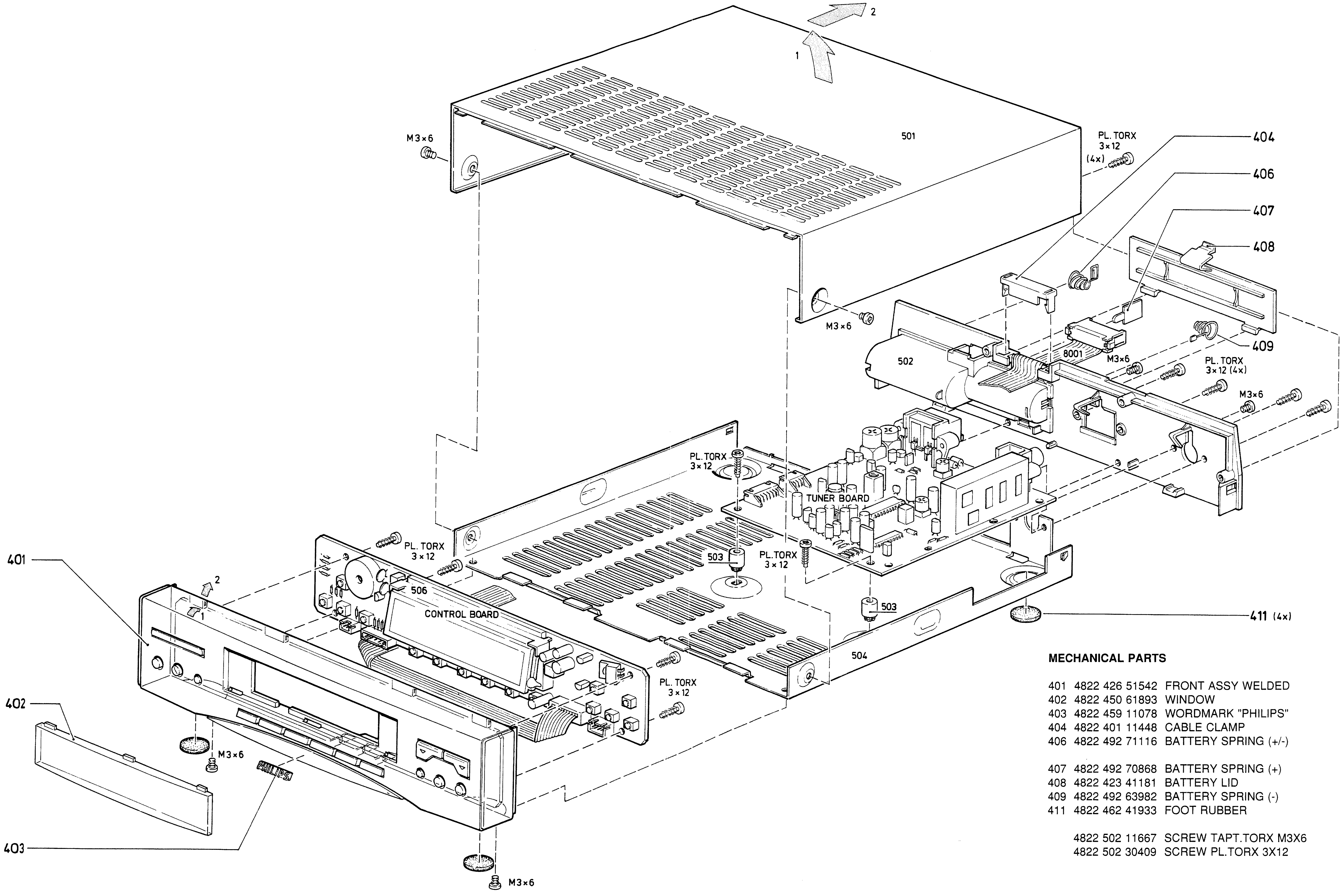
0002	A 7	2404	C10	3412	B 1	6404	B 4
1400	B 7	2405	B10	3413	B 1	6405	B11
1401	C11	2406	A 4	3414	A11	7402	A12
1402	C 3	2408	C 4	3415	A11	7403	B 3
1403	C12	2409	C 4	3416	A11	7404	A11
1404	C 2	2410	A10	3417	A11	7405	B11
1411	C 8	2411	B 4	3418	B11	7406	B 8
1412	C 7	2412	A 3	3419	A 9		
1413	C 2	2413	A 6	3420	B11		
1414	B13	2414	B 8	3421	A 4		
1415	C 9	2419	B 4	3422	A 4		
1416	C 7	2420	B 8	3423	B 9		
1417	C 3	2423	A 4	3424	B 9		
1418	C13	3400	B 2	3426	B 8		
1419	B11	3401	B 2	3427	B 8		
1420	C 5	3402	B 1	3428	B10		
1421	C 1	3403	B 4	3429	B10		
1422	C12	3404	B 4	3430	B10		
1423	C11	3405	B 3	3431	B 2		
1424	C 6	3406	B 3	3432	C 9		
1425	B 2	3407	B 3	5400	B 4		
1430	A 3	3408	B 3	5401	C 4		
2400	A10	3409	B 3	6400	A11		
2401	A10	3410	A 1	6402	A 9		
2402	B 9	3411	B 1	6403	B 2		

7400	B 5
7401	B 9



CONTROL/FT80 BOARD / COPPERSIDE VIEW / FT80

CAD-REF: PC.FT80.P4.04.FT80.00.SERV-A / 92-04-17


1
2
501
M3×6
PL. TORX
3×12
(4x)
404
406
407
408
409
M3×6
502
8001
M3×6
PL. TORX
3×12 (4x)
M3×6
PL.TORX
3×12
TUNER BOARD
PL. TORX
3×12
503
PL.TORX
3×12
503
411 (4x)
504
401
2
1
506
CONTROL BOARD
PL. TORX
3×12
402
M3×6
PHILIPS
403
M3×6

MECHANICAL PARTS

401	4822 426 51542	FRONT ASSY WELDED
402	4822 450 61893	WINDOW
403	4822 459 11078	WORDMARK "PHILIPS"
404	4822 401 11448	CABLE CLAMP
406	4822 492 71116	BATTERY SPRING (+/-)
407	4822 492 70868	BATTERY SPRING (+)
408	4822 423 41181	BATTERY LID
409	4822 492 63982	BATTERY SPRING (-)
411	4822 462 41933	FOOT RUBBER
	4822 502 11667	SCREW TAPT.TORX M3X6
	4822 502 30409	SCREW PL.TORX 3X12

ELECTRICAL PARTSLIST

MISCELLANEOUS

	4822 158 60624	AM FRAME AERIAL
1101	4822 210 10491	FRONTEND ASSY /00/01/10/17
1101	4822 210 10492	FRONTEND ASSY /02/08
1110	4822 210 10472	SOCKET COAX SHIELDED
1111	4822 290 61066	PUSH TERMINAL 2 FOLD
1400	4822 130 91122	FTD 9BT-107GK-B
1411	4822 276 13114	TACT SWITCH
1412	4822 276 13114	TACT SWITCH
1413	4822 276 13114	TACT SWITCH
1414	4822 276 13114	TACT SWITCH
1415	4822 276 13114	TACT SWITCH
1416	4822 276 13114	TACT SWITCH
1417	4822 276 13114	TACT SWITCH
1418	4822 276 13114	TACT SWITCH
1419	4822 276 13114	TACT SWITCH
1420	4822 276 13114	TACT SWITCH
1421	4822 276 13114	TACT SWITCH
1422	4822 276 13114	TACT SWITCH
1423	4822 276 13114	TACT SWITCH
1424	4822 276 13114	TACT SWITCH
1425	4822 276 13114	TACT SWITCH
1430	4822 280 10261	PIEZO BUZZER

DIODES

6101	4822 130 34174	BZX79-C4V7
6102	4822 125 50611	HN1V02H VARICAP
6109	4822 130 30621	1N4148
6122	4822 130 30621	1N4148
6121	4822 130 30621	1N4148
6123	4822 130 30621	1N4148
6400	4822 130 30843	BA315
6402	4822 130 30843	BA315
6403	4822 130 30621	1N4148
6404	4822 130 30843	BA315
6405	4822 130 30621	1N4148

TRANSISTORS

7101	4822 130 60163	2SC1047
7104	5322 130 60068	BC558C
7106	5322 130 60068	BC558C
7107	5322 130 41982	BC848 (CHIP)
7108	4822 130 44196	BC548C
7109	4822 130 44196	BC548C
7110	5322 130 44779	BC338-40
7111	5322 130 41982	BC848 (CHIP)
7112	4822 130 60163	2SC1047
7113	4822 130 44196	BC548C
7114	5322 130 44779	BC338-40
7115	4822 130 41024	BF245B
7116	4822 130 60163	2SC1047
7119	5322 130 41983	BC858B(CHIP)
7120	4822 130 44196	BC548C
7150	5322 130 44779	BC338-40
7157	5322 130 44779	BC338-40
7403	4822 130 44196	BC548C
7404	4822 130 40941	BC558
7405	4822 130 44196	BC548C
7406	4822 130 44196	BC548C

INTEGRATED CIRCUITS

7103	4822 209 31001	LA1851N HF-IC
7105	4822 209 73435	LC7218 Synthesizer
7400	4822 209 31384	TMP87CK70F-OTP version
7401	5322 209 63719	ST24C02 EEPROM
7402	4822 209 80891	MC7805CT Voltage regulator

COILS

5101	4822 157 53192	0,22µH
5103	4822 242 81224	CERAM.FILTER 10,7MHZ
5104	4822 157 63029	AM IF COIL
5105	4822 157 63904	Q-DETECION COIL
5106	4822 157 63802	BIRDY FILTER
5107	4822 157 63799	ANT. COIL MW 3-BAND
5107	4822 157 63835	ANT. COIL MW 2-BAND
5108	4822 157 63912	OSC.COIL AM 3-BAND
5108	4822 157 63836	OSC.COIL AM 2-BAND
5109	4822 157 63801	AERIAL COIL LW
5110	4822 242 71878	CERAM.RES. 450kHz
5111	4822 242 81147	RESONATOR 19kHz
5112	4822 242 72976	QUARTZ 2,7MHz
5113	4822 242 81224	CERAM.FILTER 10,7MHZ
5114	4822 152 20699	560µH
5400	5322 242 73697	CERAM.RES. 8MHz
5401	4822 242 81016	X-TAL 32,768kHz

RESISTORS

3100	4822 050 21501	150R	1%	0,6W
3101	4822 050 21501	150R	1%	0,6W
3108	4822 116 52224	470R	5%	0,5W
3113	4822 050 22201	220R	2%	0,25W
3118	4822 050 22201	220R	2%	0,25W
3120	4822 116 80335	47R	5%	NFR
3125	4822 100 11213	22k	30%	POT.
3131	4822 100 11319	4k7 trimpot.		
3134	4822 050 15602	5k6	1%	0,4W
3147	4822 050 15602	5k6	1%	0,4W
3151	4822 050 24702	4k7	1%	0,6W
3155	4822 050 22201	220R	2%	0,25W
3158	4822 050 24702	4k7	1%	0,6W
3162	4822 050 23901	390R	1%	0,6W
3165	4822 050 21002	1k	1%	0,6W
3166	4822 050 21002	1k	1%	0,6W
3167	4822 050 21002	1k	1%	0,6W
3183	4822 050 21003	10k	2%	0,25W
3186	4822 050 21003	10k	2%	0,25W
3225	4822 050 21002	1k	1%	0,6W
3400	4822 116 52283	4k7	5%	0,5W
3401	4822 116 52283	4k7	5%	0,5W
3402	4822 116 52283	4k7	5%	0,5W
3403	4822 050 11002	1k	5%	
3404	4822 050 11002	1k	5%	
3405	4822 050 11002	1k	5%	
3406	4822 050 11002	1k	5%	
3407	4822 050 11002	1k	5%	
3408	4822 050 11002	1k	5%	
3409	4822 050 11002	1k	5%	
3410	4822 116 52233	10k	5%	0,5W
3411	4822 116 52233	10k	5%	0,5W
3412	4822 116 52233	10k	5%	0,5W
3413	4822 116 52233	10k	5%	0,5W
3414	4822 116 52284	47k	5%	0,5W
3415	4822 116 52284	47k	5%	0,5W
3416	4822 116 52284	47k	5%	0,5W
3417	4822 116 52284	47k	5%	0,5W

RESISTORS

3418	4822 116 52251	18k	5%	0,5W	
3419	4822 116 52175	100R	5%	0,5W	
3420	4822 116 52176	10R	5%	0,5W	
3421	4822 116 52233	10k	5%	0,5W	
3422	4822 116 52234	100k	5%	0,5W	
3423	4822 116 52233	10k	5%	0,5W	
3424	4822 116 52233	10k	5%	0,5W	
3426	4822 116 52233	10k	5%	0,5W	
3427	4822 116 52297	68k	5%	0,5W	
3428	4822 116 80311	4,7R	5%	NFR	
3429	4822 116 80311	4,7R	5%	NFR	
3430	4822 116 80311	4,7R	5%	NFR	
3431	4822 050 11002	1k	5%		
3432	4822 050 21002	1k	5%	0,125W	

CHIP RESISTORS

3102	4822 051 20224	220k	5%	0,1W	
3103	4822 051 20008	CHIP JUMPER 0805			
3104	4822 051 20008	CHIP JUMPER 0805			
3104	4822 051 20154	150k	5%	0,1W	/02/08
3105	4822 051 20562	5k6	5%	0,1W	
3106	4822 051 20829	82R	5%	0,1W	
3107	4822 051 20104	100k	5%	0,1W	
3114	4822 051 20472	4k7	5%	0,1W	
3115	4822 051 20391	390R	5%	0,1W	
3116	4822 051 20478	4R7	5%	0,1W	
3117	4822 051 20331	330R	5%	0,1W	
3121	4822 051 20272	2k7	5%	0,1W	
3122	4822 051 20562	5k6	5%	0,1W	
3123	4822 051 20223	22k	5%	0,1W	
3124	4822 051 20103	10k	5%	0,1W	
3126	4822 051 20123	12k	2%	0,1W	
3127	4822 051 20562	5k6	5%	0,1W	
3128	4822 051 20562	5k6	5%	0,1W	
3129	4822 051 20103	10k	5%	0,1W	
3132	4822 051 20103	10k	5%	0,1W	
3133	4822 051 20008	CHIP JUMPER 0805			
3135	4822 051 10008	CHIP JUMPER 1206			
3140	4822 051 20821	820R	5%	0,1W	
3141	4822 051 20821	820R	5%	0,1W	
3142	4822 051 20472	4k7	5%	0,1W	
3143	4822 051 20821	820R	5%	0,1W	
3144	4822 051 20331	330R	5%	0,1W	
3145	4822 051 20271	270R	5%	0,1W	
3146	4822 051 20151	150R	5%	0,1W	
3148	4822 051 20104	100k	5%	0,1W	
3149	4822 051 20472	4k7	5%	0,1W	
3150	4822 051 20561	560R	5%	0,1W	
3152	4822 051 20103	10k	5%	0,1W	
3153	4822 051 20008	CHIP JUMPER 0805			
3154	4822 051 20008	CHIP JUMPER 0805			
3156	4822 051 20153	15k	5%	0,1W	
3157	4822 051 20472	4k7	5%	0,1W	
3159	4822 051 20104	100k	5%	0,1W	
3160	4822 051 20104	100k	5%	0,1W	
3163	4822 051 20103	10k	5%	0,1W	
3164	4822 051 20473	47k	5%	0,1W	
3170	4822 051 20223	22k	5%	0,1W	
3171	4822 051 20103	10k	5%	0,1W	
3172	4822 051 20472	4k7	5%	0,1W	
3173	4822 051 20223	22k	5%	0,1W	
3184	4822 051 20332	3k3	5%	0,1W	
3185	4822 051 20103	10k	5%	0,1W	
3187	4822 051 20103	10k	5%	0,1W	

CHIP RESISTORS

3190	4822 051 20479	47R	5%	0,1W
3194	4822 051 20472	4k7	5%	0,1W
3196	4822 051 20008	CHIP JUMPER 0805		
3197	4822 051 20008	CHIP JUMPER 0805		
3198	4822 051 20103	10k	5%	0,1W
3200	4822 051 20008	CHIP JUMPER 0805		
3202	4822 051 20008	CHIP JUMPER 0805		
3223	4822 051 20474	470k	5%	0,1W
3230	4822 051 20223	22k	5%	0,1W
3231	4822 051 20223	22k	5%	0,1W
3233	4822 051 10102	1k	2%	0,25W
3236	4822 051 20008	CHIP JUMPER 0805		

CAPACITORS

2103	4822 124 40433	47µF	20%	25V	
2104	4822 121 42408	220nF	5%	63V	
2107	4822 122 10225	82pF	5%	50V	
2107	4822 122 31385	22pF	5%	50V	/02/08
2114	5322 124 41431	22µF	20%	25V	
2115	4822 124 40239	0,47µF	20%	63V	
2116	5322 121 42386	100nF	5%	63V	
2117	4822 121 41935	12nF	5%	250V	
2117	4822 121 43179	18nF	5%	63V	/17
2118	4822 121 41935	12nF	5%	250V	
2118	4822 121 43179	18nF	5%	63V	/17
2119	4822 124 40244	2,2µF	20%	63V	
2120	4822 124 40244	2,2µF	20%	63V	
2121	4822 124 40196	220µF	20%	16V	
2123	4822 124 40246	4,7uF	20%	63V	
2124	4822 124 40246	4,7uF	20%	63V	
2129	4822 124 40242	1µF	20%	63V	
2131	4822 124 40435	10µF	20%	50V	
2140	4822 125 60102	30pF VARIABLE			
2141	4822 125 60101	10pF VARIABLE			
2142	4822 125 60102	30pF VARIABLE			
2144	4822 121 42408	220nF	5%	63V	
2145	4822 121 51263	510pF	1%	400V	3-BAND
2145	4822 121 51381	560pF	1%	400V	2-BAND
2146	4822 121 70082	430pF	1%	400V	
2152	4822 124 40242	1µF	20%	63V	
2156	4822 124 40433	47µF	20%	25V	
2160	4822 124 41631	1,5µF	20%	50V	
2162	4822 122 10166	22nF	30%	16V	
2165	4822 124 40433	47µF	20%	25V	
2210	4822 124 41643	100µF	20%	16V	
2400	4822 124 41525	100µF	20%	25V	
2401	4822 124 40433	47µF	20%	25V	
2402	4822 126 11585	22nF		50V	
2404	4822 124 40435	10µF	20%	50V	
2405	4822 121 51252	470nF	5%	63V	
2406	4822 121 51252	470nF	5%	63V	
2408	4822 126 12187	22pF	5%	50V	
2409	4822 126 12187	22pF	5%	50V	
2410	4822 124 40433	47µF	20%	25V	
2411	4822 121 42408	220nF	5%	63V	
2412	4822 126 11167	22nF		50V	
2413	4822 122 90099	CAP NETWORK 8x100pF			
2414	4822 122 33195	100pF	10%	50V	
2419	4822 126 11167	22nF		50V	
2420	4822 122 33195	100pF	10%	50V	
2423	4822 126 11167	22nF		50V	

CHIP CAPACITORS

2101	5322 122 34099	470pF	10%	63V	
2102	5322 122 32268	470pF	10%	50V	
2105	5322 122 32287	4,7pF	5%	50V	
2105	5322 122 32965	18pF	5%	50V	/02/08
2108	5322 122 32654	22nF	10%	63V	
2109	5322 122 32654	22nF	10%	63V	
2110	5322 122 32654	22nF	10%	63V	
2112	5322 122 32654	22nF	10%	63V	
2113	5322 122 32661	56pF	5%	50V	
2125	4822 122 33177	10nF	20%	50V	
2126	4822 122 31782	15nF	10%	50V	
2143	5322 122 32269	6,8pF	5%	50V	
2147	5322 122 32654	22nF	10%	63V	
2148	5322 122 32452	47pF	5%	50V	
2149	4822 122 33177	10nF	20%	50V	
2150	5322 122 32654	22nF	10%	63V	
2151	5322 122 34099	470pF	10%	63V	
2153	5322 122 34099	470pF	10%	63V	
2154	5322 122 32481	15pF	5%	50V	
2155	5322 122 32965	18pF	5%	50V	
2158	5322 126 10223	4,7nF	10%	63V	
2159	5322 126 10223	4,7nF	10%	63V	
2161	4822 122 32927	220nF	10%	63V	
2196	5322 122 32448	10pF	5%	50V	
2197	4822 122 33804	27pF	N750	50V	
2215	5322 122 32268	470pF	10%	50V	
2216	5322 122 32268	470pF	10%	50V	
2219	4822 122 32927	220nF	10%	63V	
2221	5322 122 32268	470pF	10%	50V	
2222	5322 122 32268	470pF	10%	50V	
2223	4822 122 32927	220nF	10%	63V	
2224	4822 122 32575	220pF	10%	500V	
2225	4822 122 32575	220pF	10%	500V	